

FCC PART 15C TEST REPORT FOR CERTIFICATION  
On Behalf of

Sony Group Corporation

Digital Media Player

Model No.: YY1301B1

S/N: 0400346; 0400347

FCC ID: AK8YY1301B1

SONY

Prepared for : Sony Group Corporation  
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Date of Test : Aug.04~23, 2022  
Date of Report : Sep.19, 2022

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Appendix A. Photograph of Test  
Appendix B. Photo of the EUT

### TEST REPORT

Applicant : Sony Group Corporation  
 Manufacturer : Sony Group Corporation  
 Product : Digital Media Player  
 FCC ID : AK8YY1301B1  
 S/N : 0400346; 0400347  
 (A) Model No. : YY1301B1  
 (B) Brand : SONY  
 (C) Test Voltage : (1)DC 5V From PC input AC 120V/60Hz  
 (2)DC 3.7V From battery

Tested for comply with:  
FCC CFR 47 Part 15 Subpart C

Test procedure used:  
ANSI C63.10: 2020  
KDB 558074 D01v05

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements. This report contains data that are not covered by the NVLAP accreditation.

This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

This report applies to single evaluation of one sample of above mentioned product and shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd..

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Aug.04~23, 2022 Report of date: Sep.19, 2022

Prepared by : Crush Liu Reviewed by : Sunny Lu  
Crush Liu / Assistant Sunny Lu / Manager

信華科技(深圳)有限公司  
 Audix Technology (Shenzhen) Co., Ltd.  
 EMC 部門報告專用章  
 Stamp only for EMC Dept. Report

Approved & Authorized Signer : Signature: David Jin  
 David Jin / Deputy General Manager

## 1. SUMMARY OF STANDARDS AND RESULTS

### 1.1. Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission	FCC Part 15: 15.207	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.205	PASS
Band Edge Compliance	FCC Part 15: 15.247(d)	PASS
Conducted spurious emissions	FCC Part 15: 15.247(d)	PASS
6dB Bandwidth	FCC Part 15: 15.247(a)(2)	PASS
Peak Output Power	FCC Part 15: 15.247(b)(3)	PASS
Power Spectral Density	FCC Part 15: 15.247(e)	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

Note: Measurement uncertainty affection to the result is considered, the EUT is technically compliant with standard requirements.

## 2. GENERAL INFORMATION

### 2.1. Description of Equipment Under Test

Applicant	Sony Group Corporation
Applicant Address	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Manufacturer	Sony Group Corporation
Manufacturer Address	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Product	Digital Media Player
Model No.	YY1301B1
FCC ID	AK8YY1301B1
Brand	SONY
Sample Type	Prototype production
Date of Receipt	Jul.04, 2022
Date of Test	Aug.04~23, 2022
Remark: This report only for WIFI 2.4GHz.	



## 2.2.Feature of Equipment Under Test

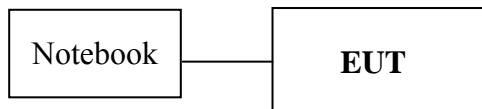
Product Feature & Specification	
Product	Digital Media Player
Model No.	YY1301B1
Power Source	<input type="checkbox"/> Commercial Power AC V
	<input checked="" type="checkbox"/> External Power Source DC 5V
	<input checked="" type="checkbox"/> Lithium battery DC 3.7V, 1500mAh
	<input type="checkbox"/> UM battery DC V
<b>Bluetooth</b>	
Radio	BDR +EDR; BLE
Frequency Range	2402-2480MHz
Type of Modulation	GFSK, $\pi/4$ DQPSK, 8DPSK
Data Rate	1Mbps, 2Mbps, 3Mbps
Quantity of Channels	79/40
Channel Separation	1MHz/2MHz
<b>2.4GHz Wi-Fi</b>	
Support Modes	802.11b/g/n20/n40
Frequency Range	2412-2462MHz
Type of Modulation	802.11b(DSSS): CCK, QPSK, BPSK; 802.11g/n(OFDM): 64QAM,16QAM, QPSK, BPSK
Data Rate	802.11b: 1/2/5.5/11 Mbps; 802.11g: 6/9/12/18/24/36/48/54 Mbps; 802.11n: up to 150Mbps
Channel Separation	5MHz
<b>5GHz Wi-Fi</b>	
Support Modes	802.11a/n20/n40/ac20/ac40/ac80
Frequency Range	5180-5240MHz, 5260-5320MHz, 5500-5600MHz, 5650-5720MHz, 5745-5825MHz
Type of Modulation	802.11a/n (OFDM): QPSK, BPSK, 16QAM, 64QAM 802.11ac (OFDM): QPSK, BPSK, 16QAM, 64QAM,256QAM
Data Rate	802.11a: 6/9/12/18/24/36/48/54 Mbps; 802.11n: up to 150Mbps; 802.11ac: up to 433Mbps
Channel Separation	5MHz

Antenna System	
Type of Antenna	Internal PIFA Antenna
Antenna Number	1
Antenna Peak Gain	Bluetooth Peak Gain: -0.3dBi DTS/DSS Band (2400-2483.5MHz) Peak Gain: -0.3dBi. U-NII-1 Band(5150-5250MHz) Peak Gain: 0.3dBi. U-NII-2A Band(5250-5350MHz) Peak Gain: -0.7dBi. U-NII-2C Band(5500-5720MHz) Peak Gain: 0.9dBi. U-NII-3 Band (5725-5850MHz) Peak Gain: 2.1dBi.

### 2.3. Tested Supporting System Details

No.	Description	ACS No.	Manufacturer	Model	Serial Number
1.	Notebook	N/A	ACER	ZOW	N/A
		Power Cord(3C): Unshielded, Detachable, 1.8m Power Adapter: Manufacturer: Lite-On, M/N: PA-1900-32 Data Cable: Shielded, Undetectable, 4.0m(Bond one ferrite core)			

### 2.4. Block diagram of connection between the EUT and simulators



**(EUT: Digital Media Player)**

### 2.5. Test Information

A special test software (Qualcomm® Radio Control Toolkit v4.0 Version 4.0.00185.0) was used to control EUT work in Continuous TX mode(The duty cycle of the test signal is 100%), and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)(see Note)	Channel	Frequency (MHz)
IEEE 802.11b	1	Low :CH1	2412
	1	Middle: CH6	2437
	1	High: CH11	2462
IEEE 802.11g	6	Low :CH1	2412
	6	Middle: CH6	2437
	6	High: CH11	2462
IEEE 802.11n HT20	MCS0	Low :CH1	2412
	MCS0	Middle: CH6	2437
	MCS0	High: CH11	2462
IEEE 802.11n HT40	MCS0	Low :CH3	2422
	MCS0	Middle: CH6	2437
	MCS0	High: CH9	2452

Note: 1. According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.



**2.6. Test Facility**

Site Description  
Name of Firm

: Audix Technology (Shenzhen) Co., Ltd.  
No. 6, Kefeng Road, Science & Technology Park,  
Nanshan District , Shenzhen, Guangdong, China

EMC Lab.

- : Certificated by ISED, Canada  
Company Number: 5183A  
CAB identifier: CN0034  
Valid Date: Mar.31, 2023
- : Certificated by FCC, USA  
Designation No.: CN5022  
Valid Date: Mar.31, 2023
- : Accredited by NVLAP, USA  
NVLAP Code: 200372-0  
Valid Date: Mar.31, 2023

**2.7. Measurement Uncertainty (95% confidence levels, k=2)**

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	2.6dB(150KHz to 30MHz)
Uncertainty for Radiation Emission test in 3m chamber	3.4dB(30~200MHz, Polarization: H)
	3.6dB(30~200MHz, Polarization: V)
	3.0dB(200M~1GHz, Polarization: H)
	3.2dB(200M~1GHz, Polarization: V)
Uncertainty for Radiation Emission test in 3m chamber(1GHz-25GHz)	4.6dB(1~6GHz, Distance: 3m)
	4.8dB(6~25GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.7dB(30MHz~1000MHz)
	3.3dB(1~26.5GHz)
Uncertainty for Conduction Spurious emission test	2.0dB
Uncertainty for Output power test	0.8dB
Uncertainty for Bandwidth test	83kHz
Uncertainty for DC power test	1%
Uncertainty for test site temperature and humidity	0.6°C
	3%

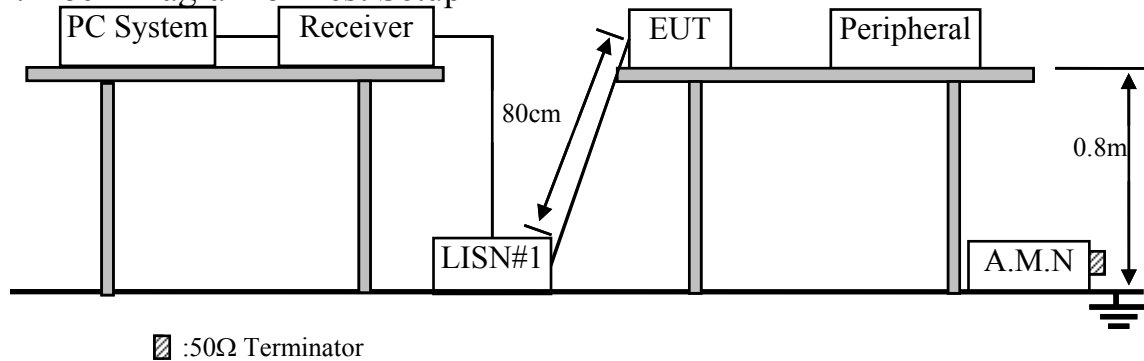
### 3. POWER LINE CONDUCTED EMISSION TEST

#### 3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room	AUDIX	N/A	N/A	May.17,18	5 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100842	Apr.07,22	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ENV216	102160	Oct.09,21	1 Year
4.	A.M.N	Kyoritsu	KNW-403D	8-1750-2	Apr.06,22	1 Year
5.	RF Cable	Eastsheep	RG223	190424	Oct.11,21	1 Year
6.	Test Software	AUDIX	e3	6.100913a	N/A	N/A

Note: N/A means Not applicable.

#### 3.2. Block Diagram of Test Setup



#### 3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. \* Decreasing linearly with logarithm of frequency.

2. The lower limits shall apply at the transition frequencies.

3. Emission Level (dBμV) = Factor (L.I.S.N.) (dB) + Cable Loss (dB) + Reading (Receiver) (dBμV)

#### 3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

##### 3.4.1. Digital Media Player (EUT)

Model No. : YY1301B1

Serial No. : N/A

##### 3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.3.

### 3.5. Operating Condition of EUT

- 3.5.1. Setup the EUT as shown as Section 3.2.
- 3.5.2. Turn on the power of EUT.
- 3.5.3. PC run test software to control EUT work in Tx mode.

### 3.6. Test Procedure

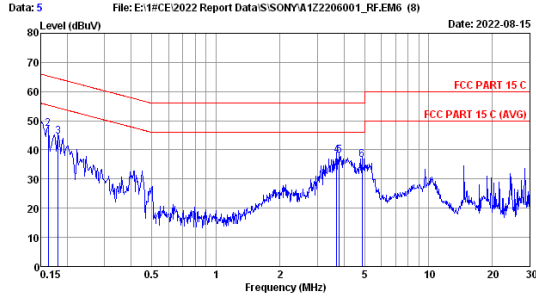
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via AC unit connected to the power mains through a line impedance stabilization network (L.I.S.N. #1). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESCI) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

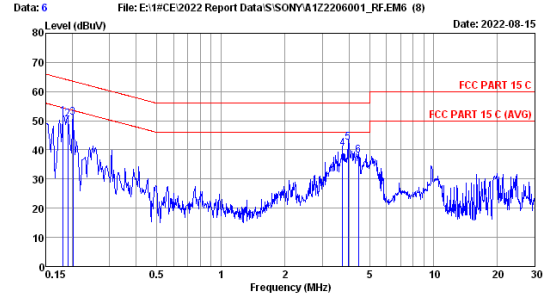
### 3.7. Power Line Conducted Emission Test Results

**PASS.** (All emissions not reported below are too low against the prescribed limits.)



Data: 5 File: E:\1#CE2022 Report Data\S\SONYA122206001\_RF.EM6 (8) Date: 2022-08-15

Site no :1# Conduction Data No :5  
 Dis./Lisn :2021 ENV216-L LISN phase:  
 Limit :FCC PART 15 C  
 Env./Ins. :26.1°C/57k Engineer :Evan  
 Power Rating :AC 120V/60Hz  
 Test Mode :WIFI 2.4G TX



Data: 6 File: E:\1#CE2022 Report Data\S\SONYA122206001\_RF.EM6 (8) Date: 2022-08-15

Site no :1# Conduction Data No :6  
 Dis./Lisn :2021 ENV216-N LISN phase:  
 Limit :FCC PART 15 C  
 Env./Ins. :26.1°C/57k Engineer :Evan  
 Power Rating :AC 120V/60Hz  
 Test Mode :WIFI 2.4G TX

No	Freq (MHz)	LISN Factor (dB)	Cable loss (dB)	Reading (dBuV)	Emission		Margin (dB)	Remark
					Level (dBuV)	Limits (dBuV)		
1	0.150	9.50	0.01	39.33	48.84	66.00	17.16	QP
2	0.162	9.50	0.01	37.77	47.28	65.34	18.06	QP
3	0.182	9.50	0.01	35.13	44.64	64.42	19.78	QP
4	3.700	9.59	0.03	28.60	38.22	56.00	17.78	QP
5	3.799	9.59	0.03	28.55	38.17	56.00	17.83	QP
6	4.874	9.60	0.04	26.95	36.59	56.00	19.41	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

No	Freq (MHz)	LISN Factor (dB)	Cable loss (dB)	Reading (dBuV)	Emission		Margin (dB)	Remark
					Level (dBuV)	Limits (dBuV)		
1	0.182	10.00	0.01	41.28	51.29	64.42	13.13	QP
2	0.190	10.00	0.01	40.42	50.43	64.02	13.59	QP
3	0.202	10.00	0.01	41.11	51.12	63.54	12.42	QP
4	3.740	10.20	0.03	30.14	40.37	56.00	15.63	QP
5	3.964	10.20	0.03	32.22	42.45	56.00	13.55	QP
6	4.430	10.20	0.03	27.89	38.12	56.00	17.88	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

## 4. RADIATED EMISSION TEST

### 4.1. Test Equipments

#### 4.1.1. For frequency range 30MHz~1000MHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber(NSA)	AUDIX	N/A	N/A	May.02,22	1 Year
2.	3#Chamber(SE)	AUDIX	N/A	N/A	May.17,18	5 Year
3.	Signal Analyzer	Rohde & Schwarz	FSV30	103670	Oct.09,21	1 Year
4.	Tri-log-Broadband Antenna	SCHWARZBECK	VULB 9168	710	Dec.13,21	1 Year
5.	NSA Cable	HUBER+SUHNER	CFD400NL-LW	No.3	Oct.09,21	1 Year
6.	Coaxial Switch	Anritsu	MP59B	6201397223	Apr.06,22	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.06,22	1 Year
8.	Amplifier	HP	8447D	2944A11159	Apr.06,22	1 Year
9.	Test Software	AUDIX	e3	6.100913a	N/A	N/A

Note: N/A means Not applicable.

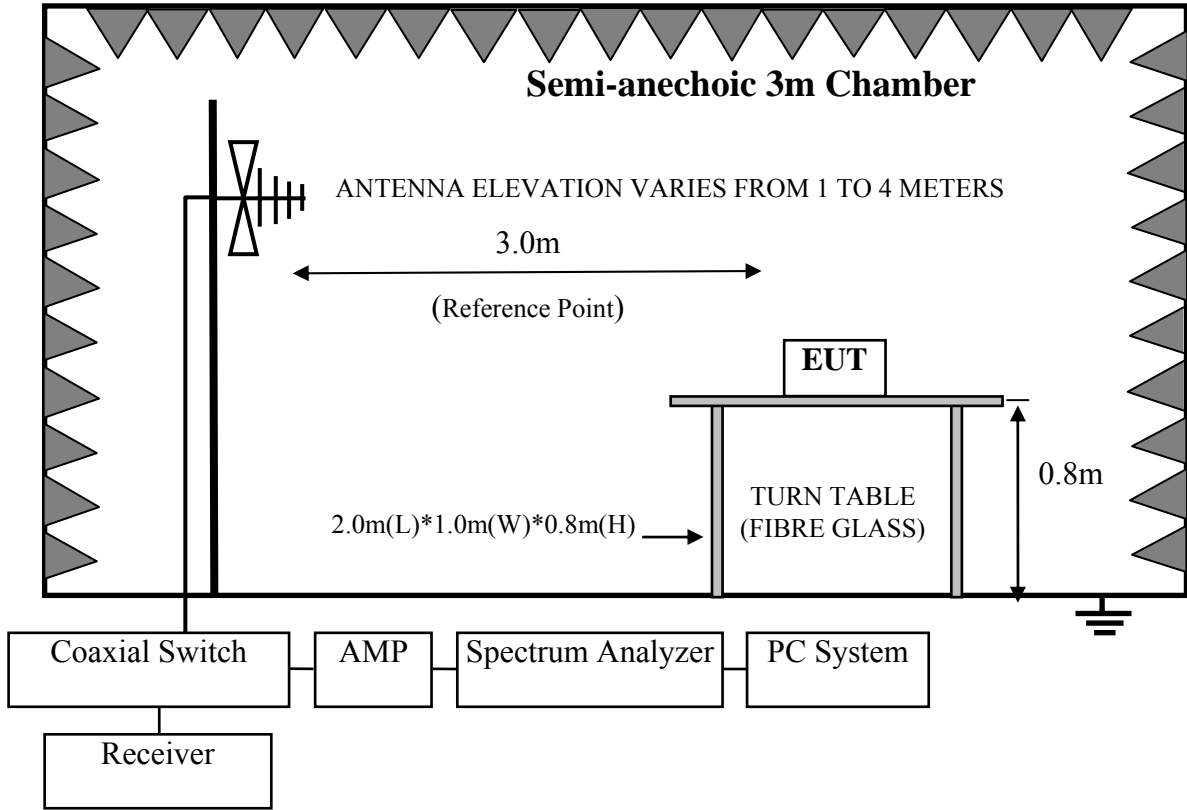
#### 4.1.2. For frequency range 1GHz~25GHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber(Svswr)	AUDIX	N/A	N/A	Apr.14,22	1 Year
2.	3#Chamber(SE)	AUDIX	N/A	N/A	May.17,18	5 Year
3.	Signal Analyzer	Rohde & Schwarz	FSV30	103670	Oct.09,21	1 Year
4.	Amplifier	Agilent	83017A	MY53270084	Oct.09,21	1 Year
5.	RF Cable	EMCI	EMC104-SM-SM-15000	190407	Jul.01,22	1 Year
6.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
7.	Horn Antenna	ETS	3115	9607-4877	Jan.08,22	3 Year

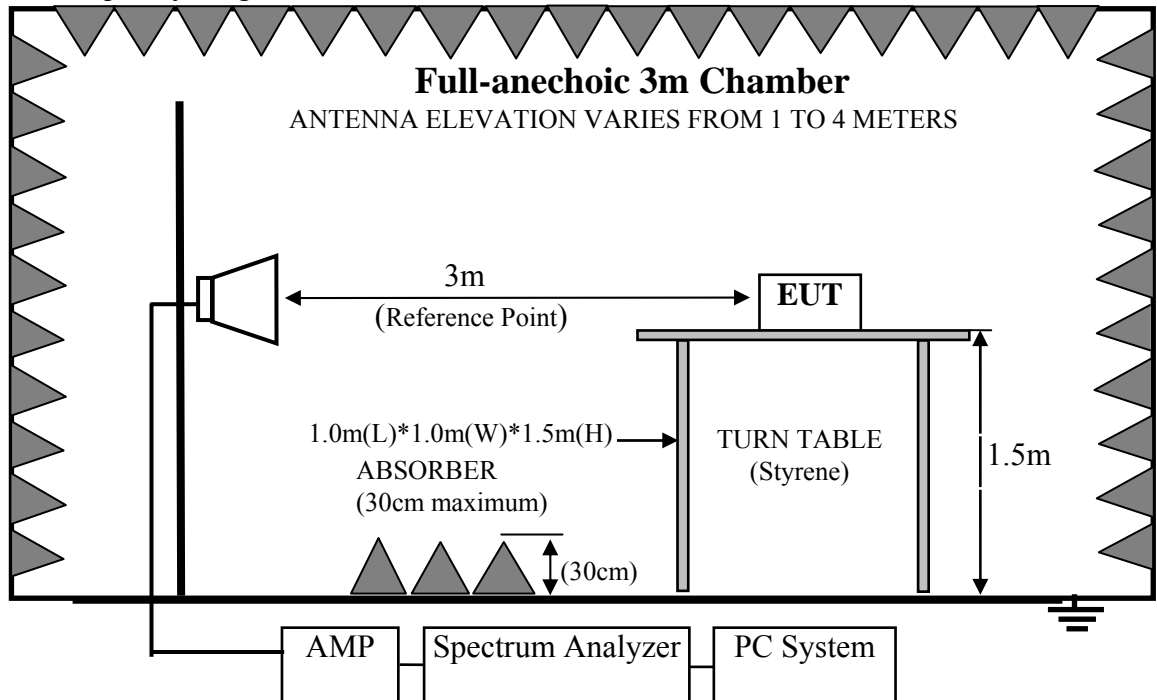
Note: N/A means Not applicable.

### 4.2. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range 1GHz-25GHz





### 4.3. Radiated Emission Limits

#### 4.3.1. 15.247&209 limits

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

- Remark : (1) Emission Level (dBμV/m) = Reading (Receiver) (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB)  
Emission Level (dBμV/m) = Reading (Spectrum) (dBμV) + Antenna Factor (dB/m) – Amp Factor (dB) + Cable Loss (dB)(above 1000MHz)
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

#### 4.3.2. 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

### 4.4. EUT Configuration on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

#### 4.4.1. Digital Media Player (EUT)

Model No. : YY1301B1  
Serial No. : N/A

#### 4.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.3.

#### 4.5. Operating Condition of EUT

- 4.5.1. Setup the EUT and simulator as shown as Section 4.2.
- 4.5.2. Turn on the power of all equipments.
- 4.5.3. Let EUT work in Tx(WiFi 2.4GHz) mode

#### 4.6. Test Procedure

##### **Frequency below 30MHz:**

The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10 regulation.

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground for frequency 30MHz~1000MHz, 1.5 meter high above ground for frequency above 1GHz and put the absorbing with 2.4m(L)\*2.4m(W)\*0.3m(H) on the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna for frequency 30MHz~1000MHz, and the Horn antenna is used as receiving antenna for frequency above 1GHz. Both horizontal and vertical polarization of the antenna are set on test.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as test photo indicated.

The bandwidth of the EMI test receiver (R&S ESR7) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

The frequency range from 30MHz to 10<sup>th</sup> harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25GHz, So the radiated emissions from 18GHz to 25GHz were not record.

#### 4.7. Radiated Emission Test Results

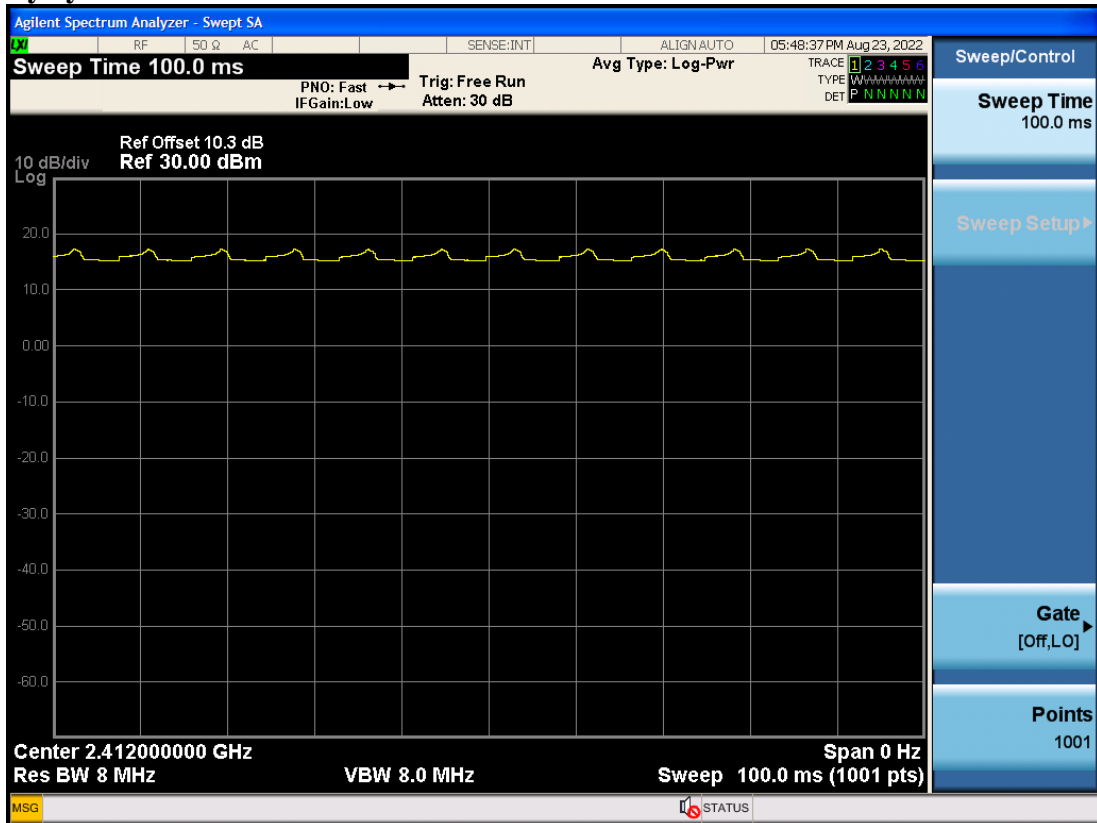
##### **PASS.**

All the emissions from 30MHz to 25 GHz were comply with 15.209 limits.

Note 1: For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

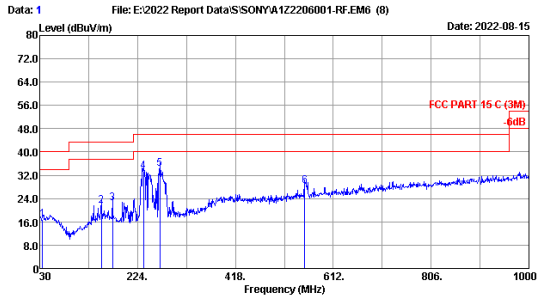
Note 2: The emissions (9kHz~30MHz) not reported for there is no emission be found.

### Duty cycle

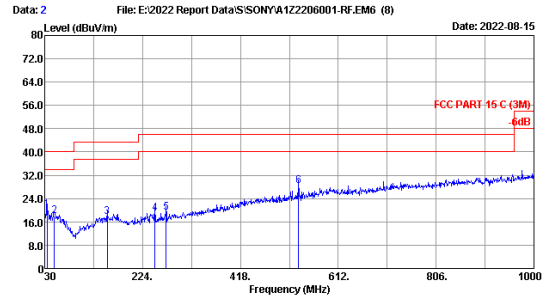


Note: The duty cycle of the test signal is  $\geq 98\%$ .

**Frequency: 30MHz~1GHz**



Data: 1 File: E:\2022 Report Data\SONYA\122206001-RF.EM6 (8) Date: 2022-08-15  
 Site no. : 3m Chamber Data no. : 1  
 Dis. / Ant. : 3m 2021 VULB9168-710 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15 C (3M)  
 Env. / Ins. : 23.3°C/53% Engineer : Abel  
 Test Mode : WIF12.4G



Data: 2 File: E:\2022 Report Data\SONYA\122206001-RF.EM6 (8) Date: 2022-08-15  
 Site no. : 3m Chamber Data no. : 2  
 Dis. / Ant. : 3m 2021 VULB9168-710 Ant. pol. : VERTICAL  
 Limit : FCC PART 15 C (3M)  
 Env. / Ins. : 23.3°C/53% Engineer : Abel  
 Test Mode : WIF12.4G

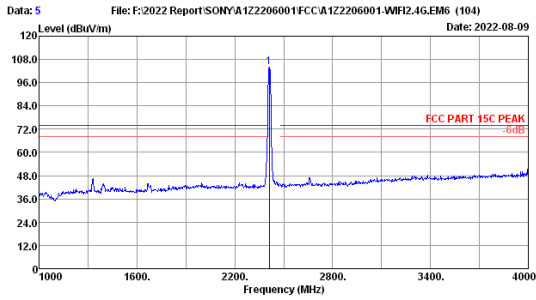
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	35.820	19.70	0.68	-3.49	16.89	40.00	23.11	QP
2	152.220	19.68	1.22	0.73	21.63	43.50	21.87	QP
3	174.530	18.94	1.34	2.16	22.44	43.50	21.06	QP
4	235.640	17.95	1.52	13.96	33.43	46.00	12.57	QP
5	268.620	18.86	1.64	13.85	34.35	46.00	11.65	QP
6	555.740	25.03	2.48	0.81	28.32	46.00	17.68	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	34.850	19.55	0.68	-0.16	20.07	40.00	19.93	QP
2	49.400	20.30	0.75	-3.13	17.92	40.00	22.08	QP
3	154.160	19.66	1.23	-3.22	17.87	43.50	25.63	QP
4	248.250	18.25	1.57	-0.95	18.87	46.00	27.13	QP
5	270.560	18.92	1.65	-1.43	19.14	46.00	26.86	QP
6	533.430	24.57	2.42	1.42	28.41	46.00	17.59	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

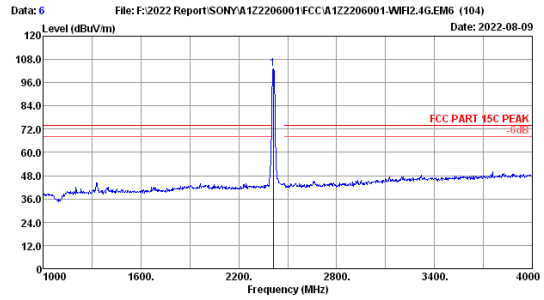
### Frequency: 1GHz~18GHz



Site no. : 3m Chamber Data no. : 5  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2412MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.30	3.66	107.14	35.24	103.86	72.00	31.86	Peak

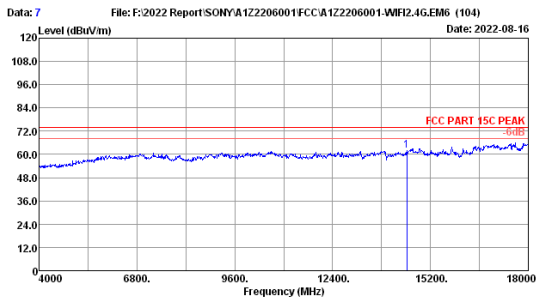
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 6  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2412MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.30	3.66	106.33	35.24	103.05	72.00	31.05	Peak

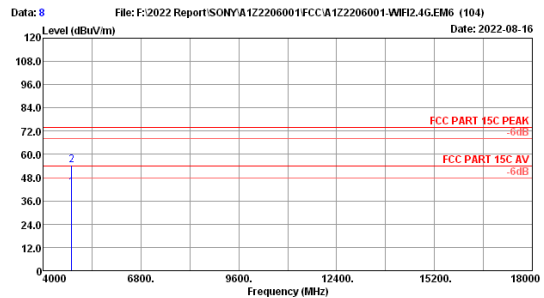
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 7  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2412MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	14528.00	41.89	6.41	48.23	34.45	62.02	74.00	11.98	Peak

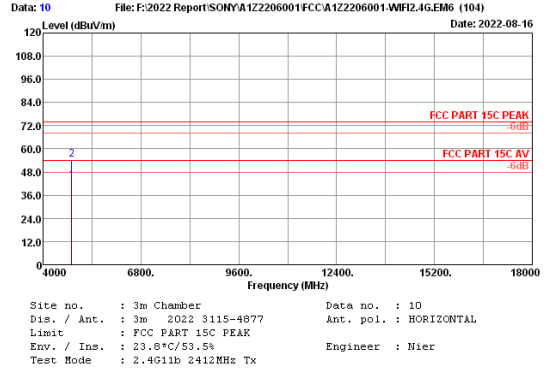
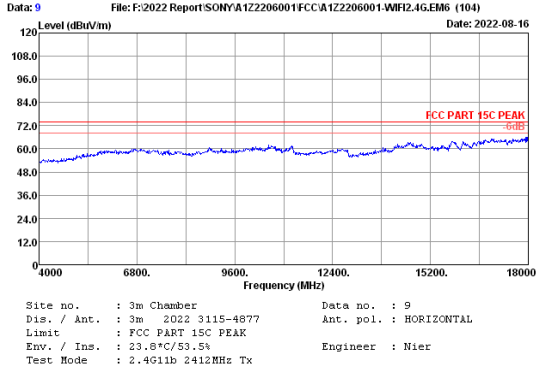
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 8  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2412MHz Tx

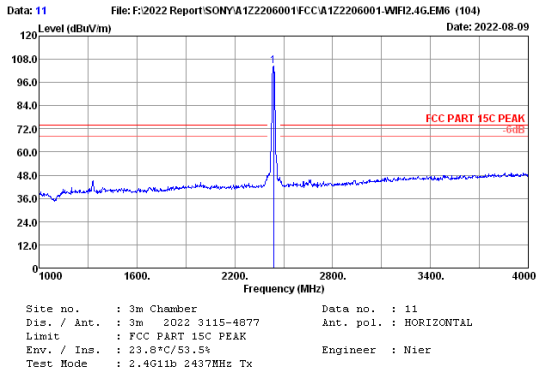
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	33.10	4.99	39.20	34.46	42.83	54.00	11.17	Average
2	4824.00	33.10	4.99	50.86	34.46	54.49	74.00	19.51	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



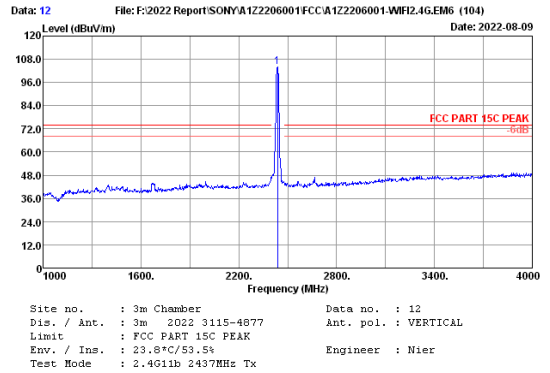
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	33.10	4.99	39.56	34.46	43.19	54.00	10.81	Average
2	4824.00	33.10	4.99	50.74	34.46	54.37	74.00	19.63	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.30	3.68	107.73	35.24	104.47	-----	-----	Peak

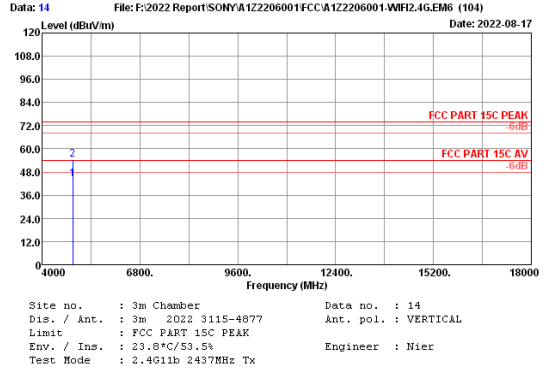
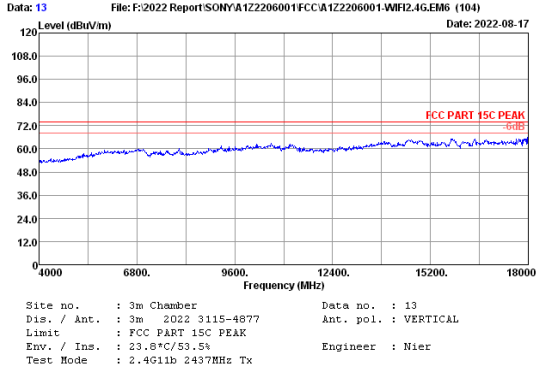
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.30	3.68	107.31	35.24	104.05	-----	-----	Peak

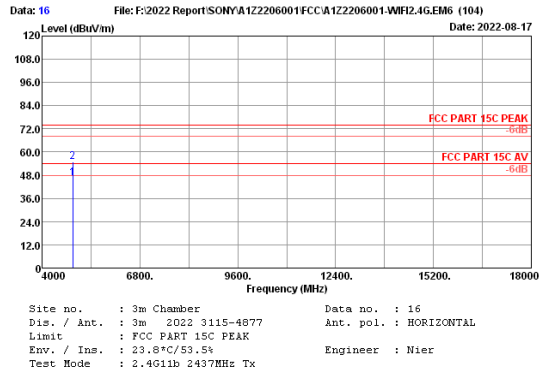
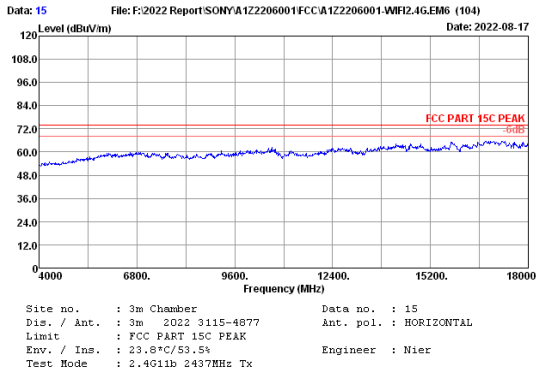
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.





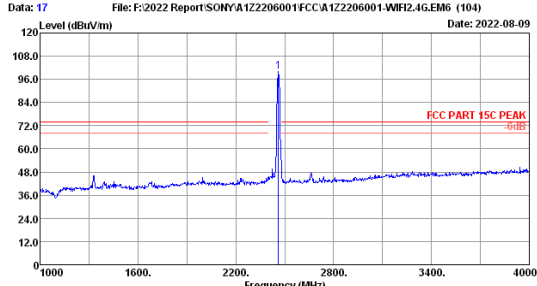
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	5.01	40.77	34.47	44.41	54.00	9.59	Average
2	4874.00	33.10	5.01	50.65	34.47	54.29	74.00	19.71	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	5.01	42.64	34.47	46.28	54.00	7.72	Average
2	4874.00	33.10	5.01	51.28	34.47	54.92	74.00	19.08	Peak

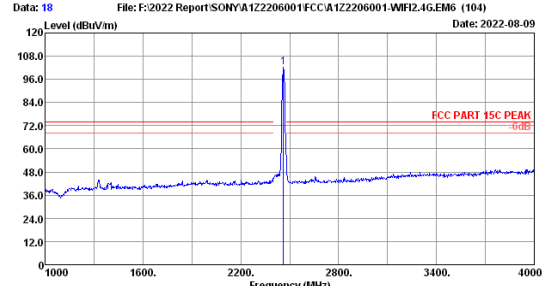
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 17  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2462MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.30	3.70	103.19	35.25	99.94	72.0	-----	Peak

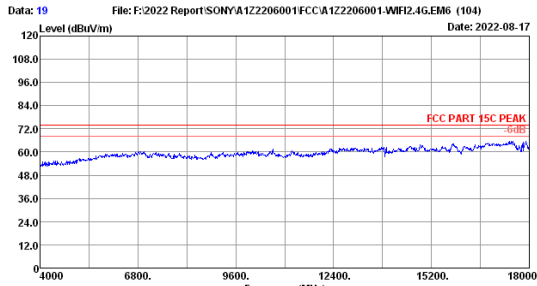
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



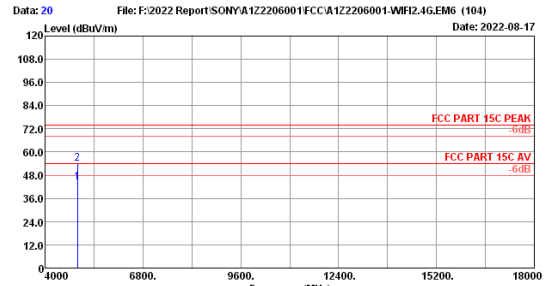
Site no. : 3m Chamber Data no. : 18  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2462MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.30	3.70	105.57	35.25	102.32	72.0	-----	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



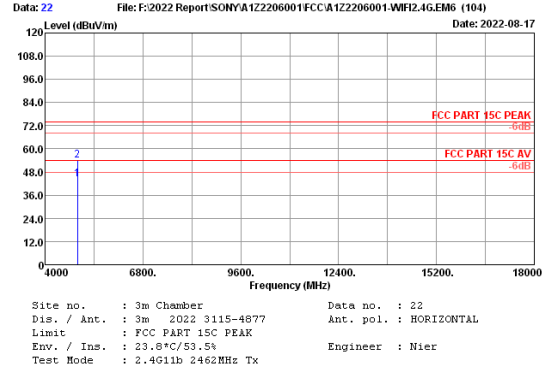
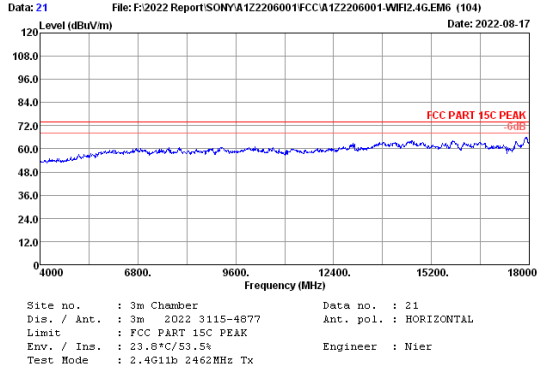
Site no. : 3m Chamber Data no. : 19  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2462MHz Tx



Site no. : 3m Chamber Data no. : 20  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2462MHz Tx

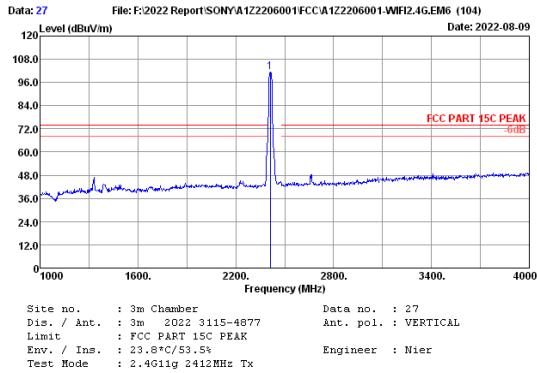
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.10	5.03	40.49	34.48	44.14	54.00	9.86	Average
2	4924.00	33.10	5.03	50.59	34.48	54.24	74.00	19.76	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



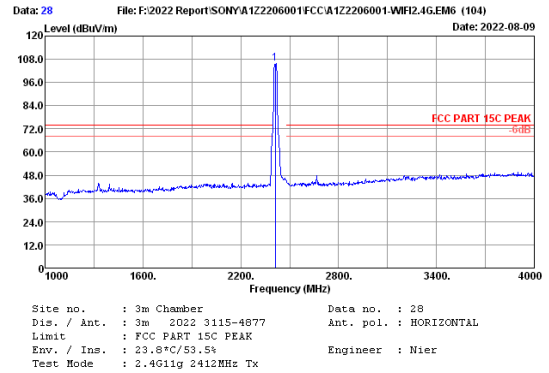
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.10	5.03	40.70	34.48	44.35	54.00	9.65	Average
2	4924.00	33.10	5.03	50.32	34.48	53.97	74.00	20.03	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



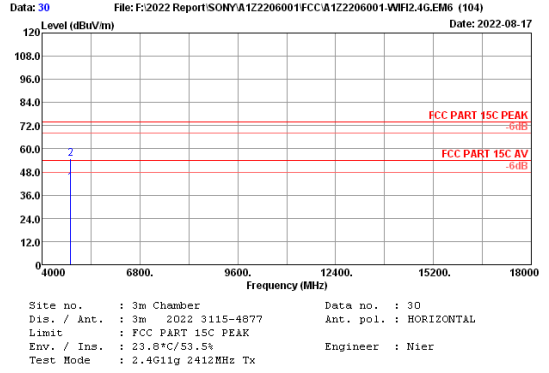
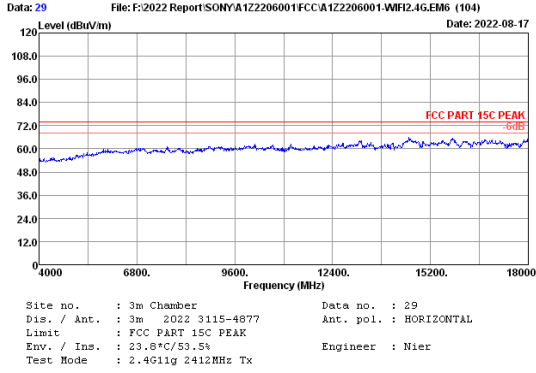
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.30	3.66	104.55	35.24	101.27	-----	-----	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



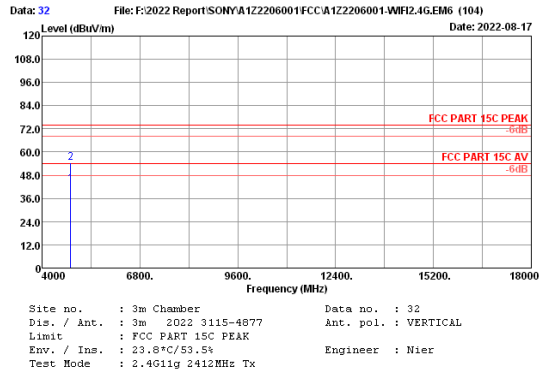
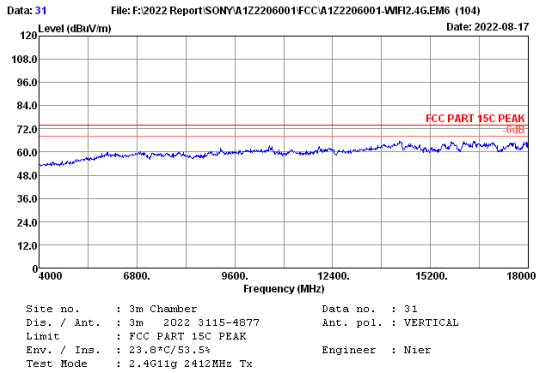
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.30	3.66	108.97	35.24	105.69	-----	-----	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



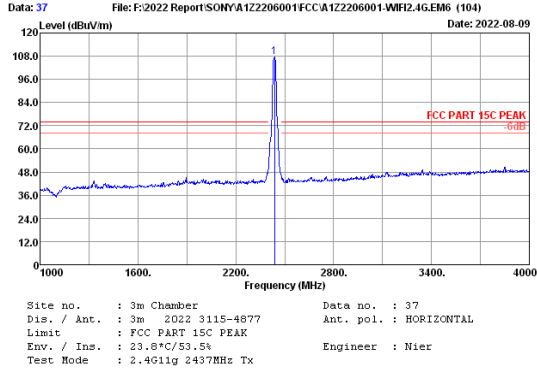
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	33.10	4.99	38.66	34.46	42.29	54.00	11.71	Average
2	4824.00	33.10	4.99	51.27	34.46	54.90	74.00	19.10	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



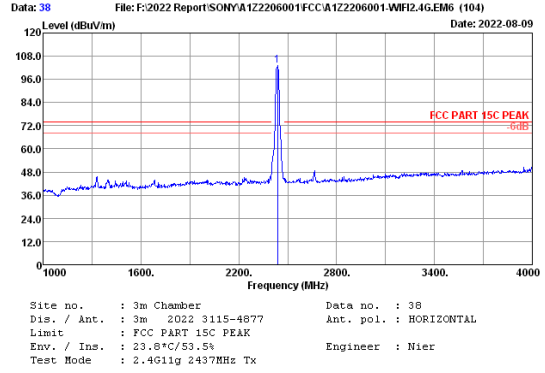
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	33.10	4.99	39.66	34.46	43.29	54.00	10.71	Average
2	4824.00	33.10	4.99	51.05	34.46	54.68	74.00	19.32	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



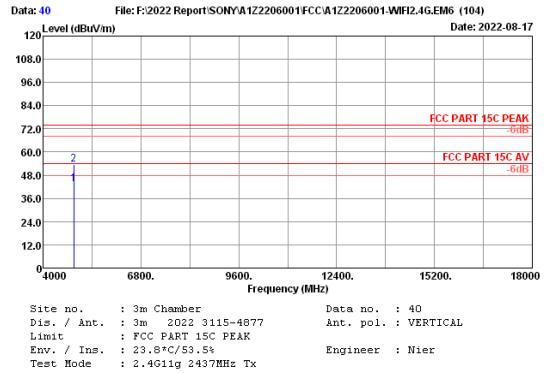
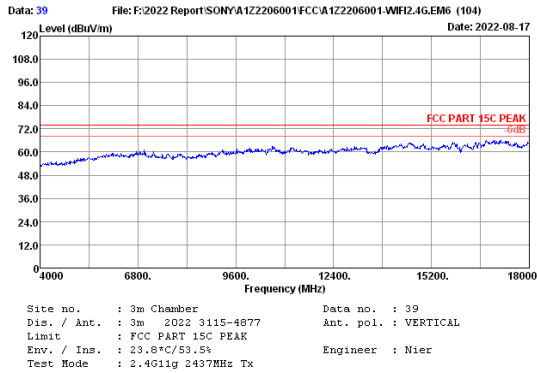
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.30	3.68	110.68	35.24	107.42	72.00	35.42	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



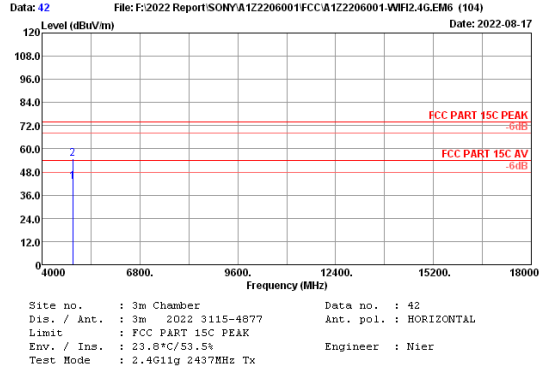
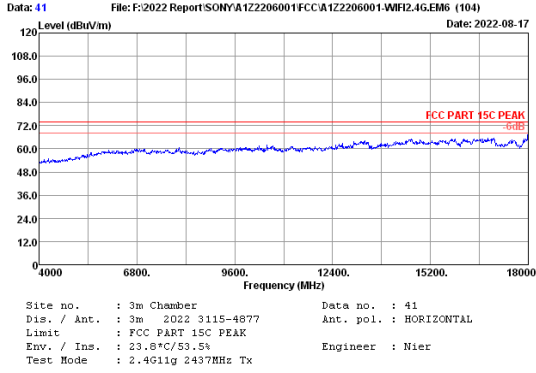
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.30	3.68	106.22	35.24	102.96	72.00	30.96	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



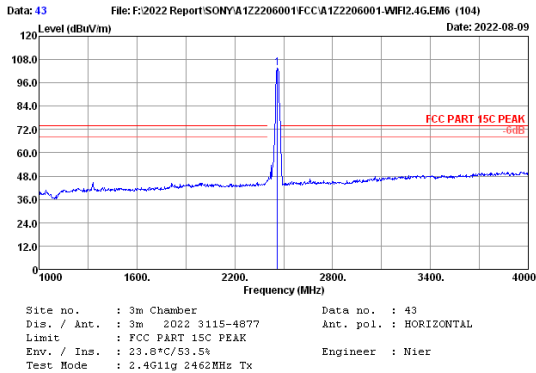
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	5.01	39.67	34.47	43.31	54.00	10.69	Average
2	4874.00	33.10	5.01	49.97	34.47	53.61	74.00	20.39	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



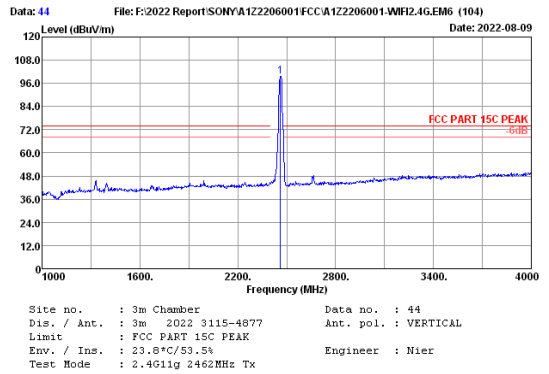
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	5.01	39.20	34.47	42.84	54.00	11.16	Average
2	4874.00	33.10	5.01	51.05	34.47	54.69	74.00	19.31	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.30	3.70	106.72	35.25	103.47	-----	-----	Peak

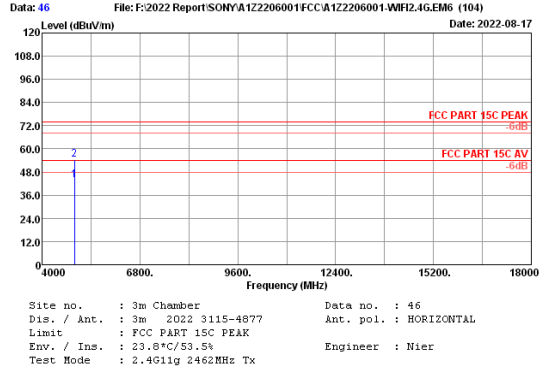
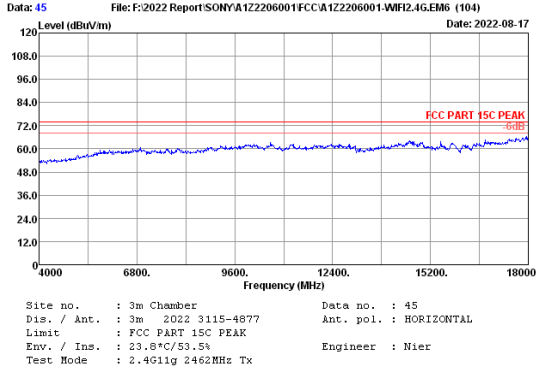
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.30	3.70	102.93	35.25	99.68	-----	-----	Peak

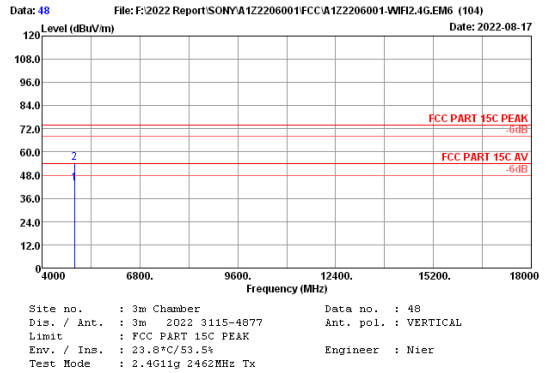
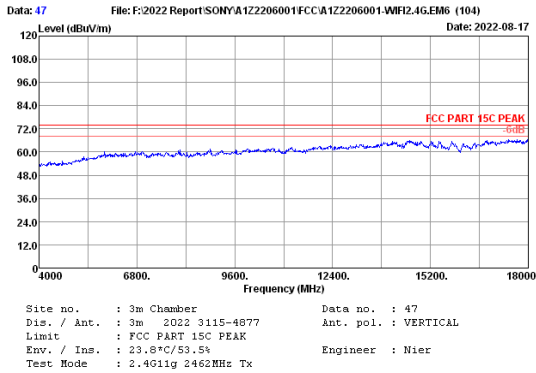
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.





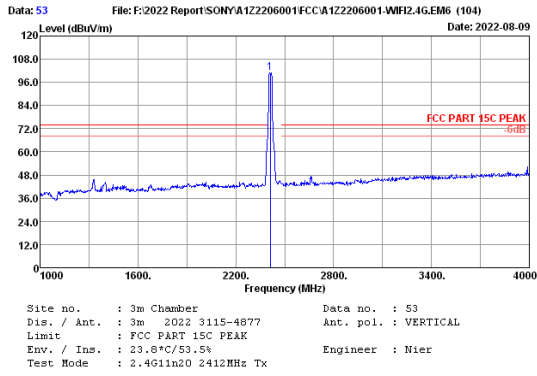
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.10	5.03	40.32	34.48	43.97	54.00	10.03	Average
2	4924.00	33.10	5.03	50.84	34.48	54.49	74.00	19.51	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



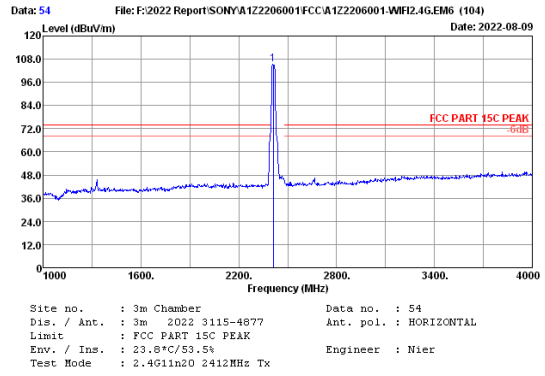
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.10	5.03	40.23	34.48	43.88	54.00	10.12	Average
2	4924.00	33.10	5.03	50.67	34.48	54.32	74.00	19.68	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



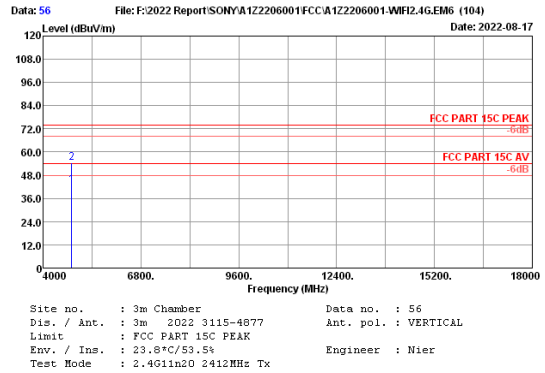
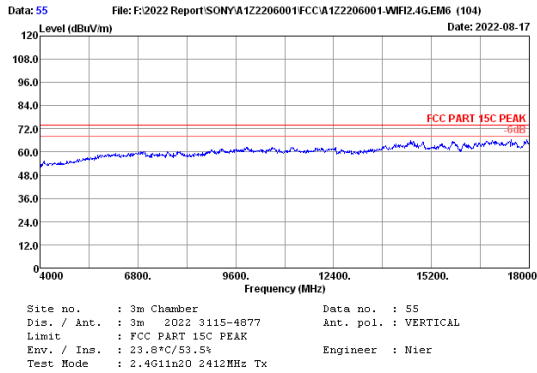
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.30	3.66	104.30	35.24	101.02	-----	-----	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



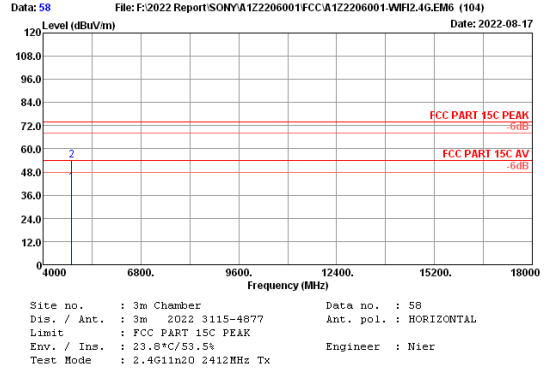
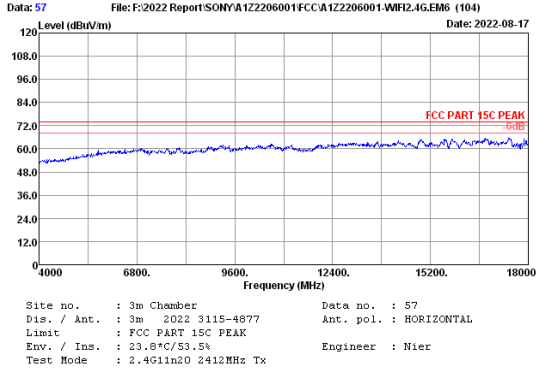
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.30	3.66	108.79	35.24	105.51	-----	-----	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



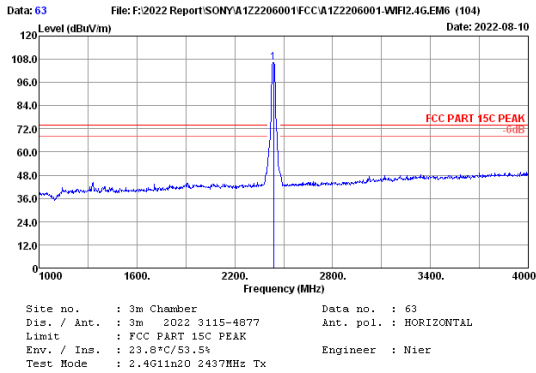
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	33.10	4.99	59.10	34.46	42.73	54.00	11.27	Average
2	4824.00	33.10	4.99	51.03	34.46	54.66	74.00	19.34	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



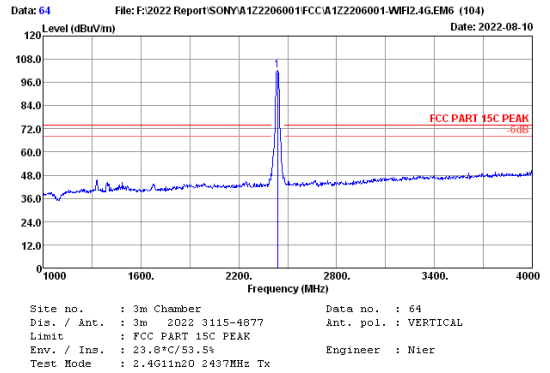
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	33.10	4.99	39.06	34.46	42.69	54.00	11.31	Average
2	4824.00	33.10	4.99	50.55	34.46	54.18	74.00	19.82	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



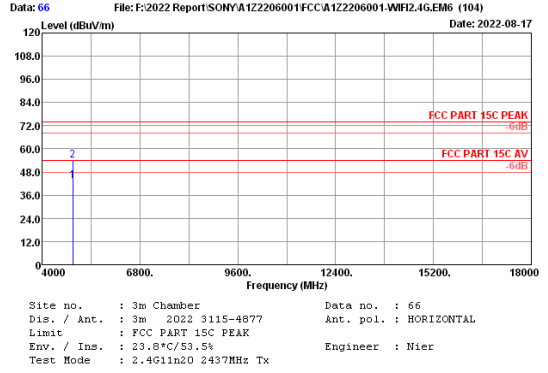
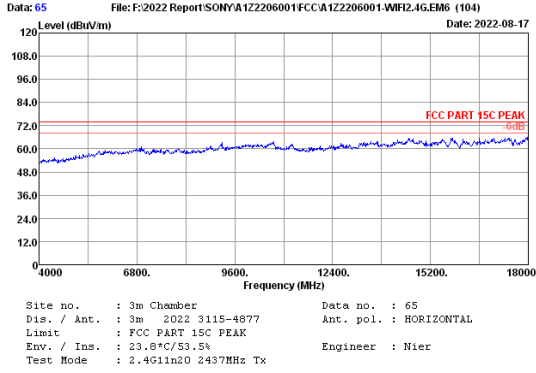
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.30	3.68	109.66	35.24	106.40	72.00	34.40	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



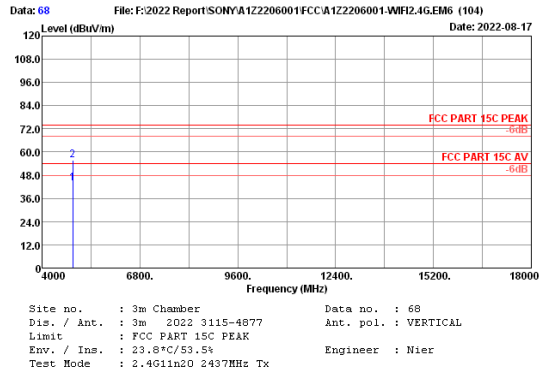
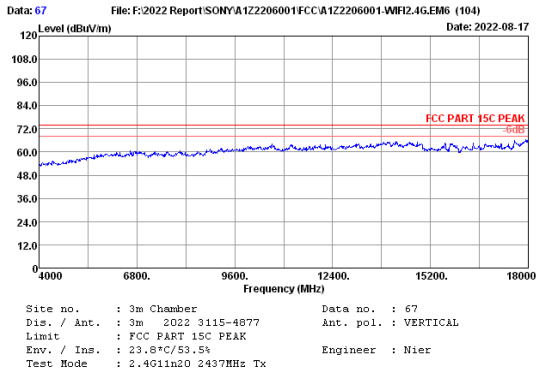
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.30	3.68	105.65	35.24	102.39	72.00	30.39	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



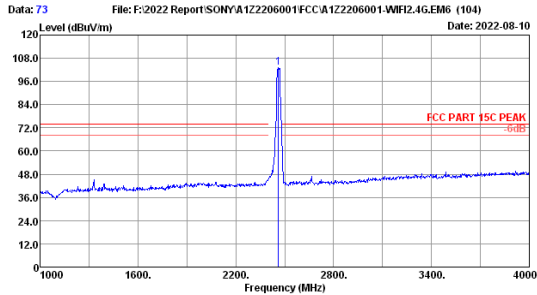
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	5.01	39.80	34.47	43.44	54.00	10.56	Average
2	4874.00	33.10	5.01	50.57	34.47	54.21	74.00	19.79	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	5.01	40.05	34.47	43.69	54.00	10.31	Average
2	4874.00	33.10	5.01	52.08	34.47	55.72	74.00	18.28	Peak

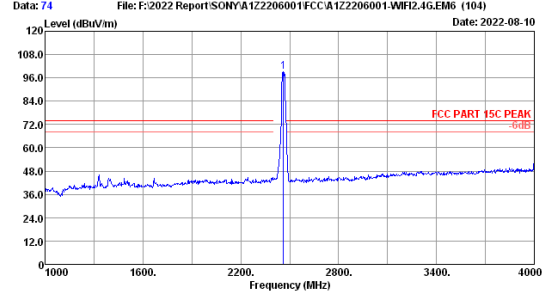
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 73  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11n20 2462MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.30	3.70	106.61	35.25	103.36	72.0	31.36	Peak

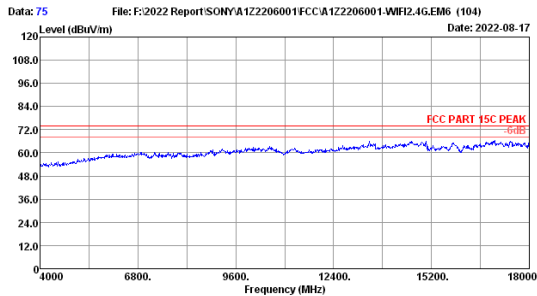
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



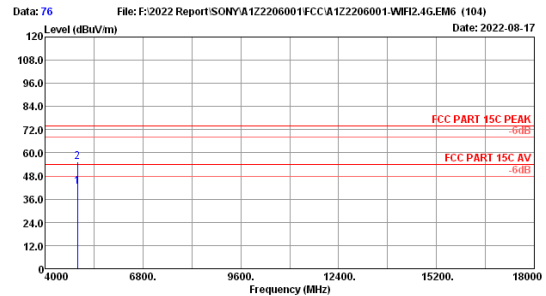
Site no. : 3m Chamber Data no. : 74  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11n20 2462MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.30	3.70	102.45	35.25	99.20	72.0	27.20	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



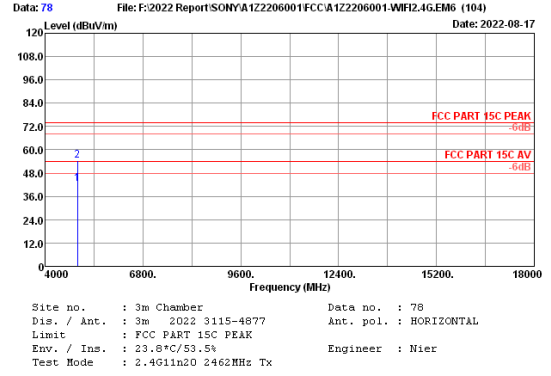
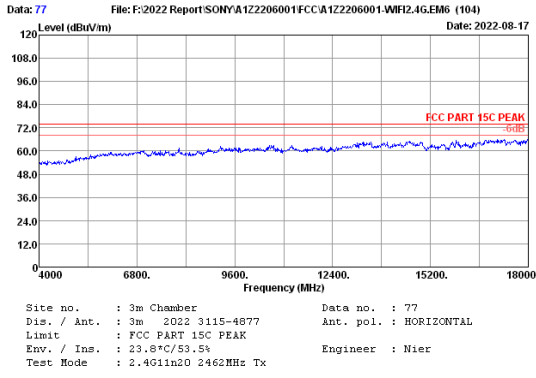
Site no. : 3m Chamber Data no. : 75  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11n20 2462MHz Tx



Site no. : 3m Chamber Data no. : 76  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11n20 2462MHz Tx

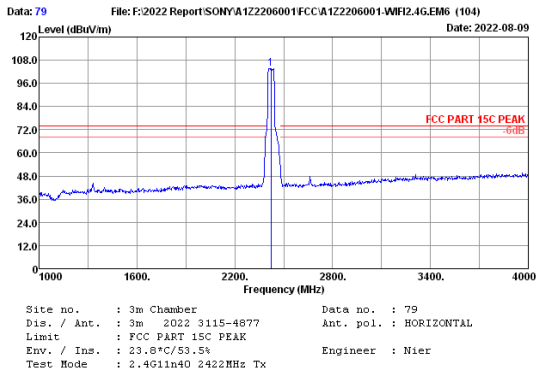
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.10	5.03	39.04	34.48	42.69	60.0	17.31	Average
2	4924.00	33.10	5.03	51.67	34.48	55.32	74.0	18.68	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



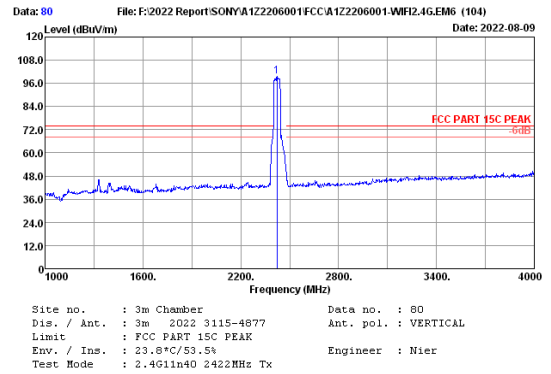
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.10	5.03	38.79	34.48	42.44	54.00	11.56	Average
2	4924.00	33.10	5.03	50.65	34.48	54.30	74.00	19.70	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



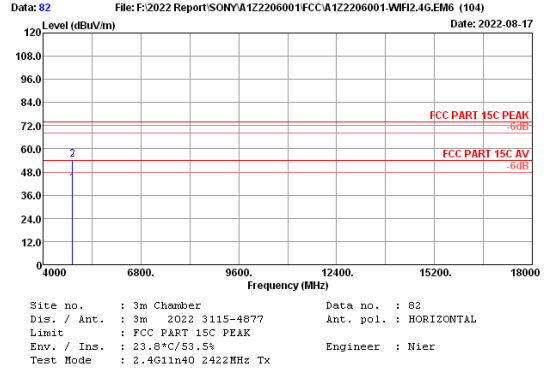
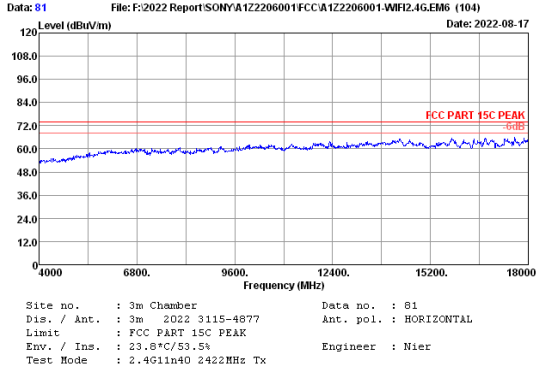
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2422.00	28.30	3.67	107.05	35.24	103.78	-----	-----	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



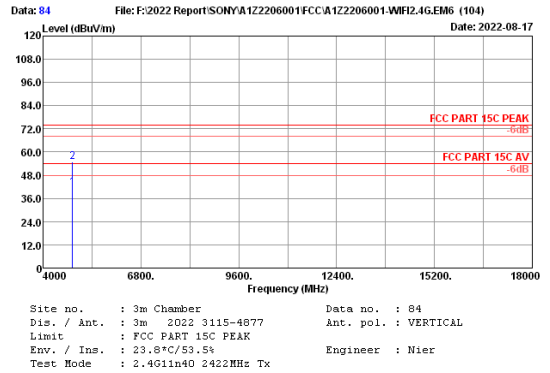
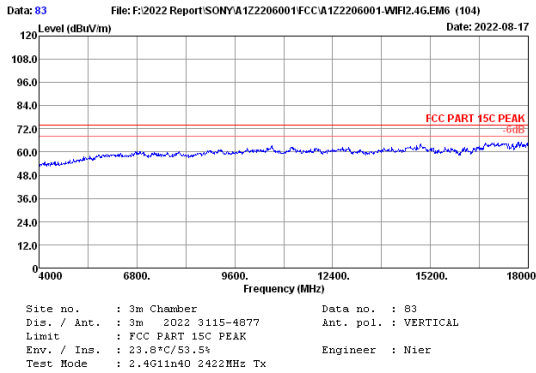
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2422.00	28.30	3.67	102.70	35.24	99.43	-----	-----	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



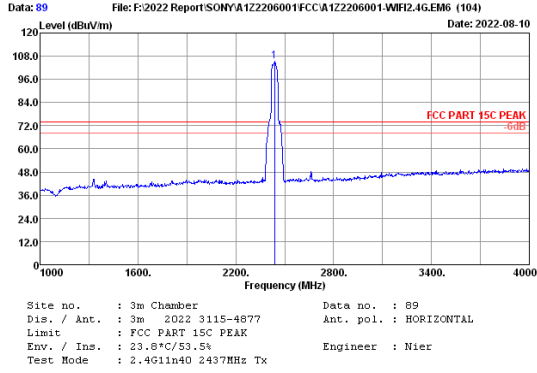
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4844.00	33.10	4.99	38.37	34.47	41.99	54.00	12.01	Average
2	4844.00	33.10	4.99	50.85	34.47	54.47	74.00	19.53	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



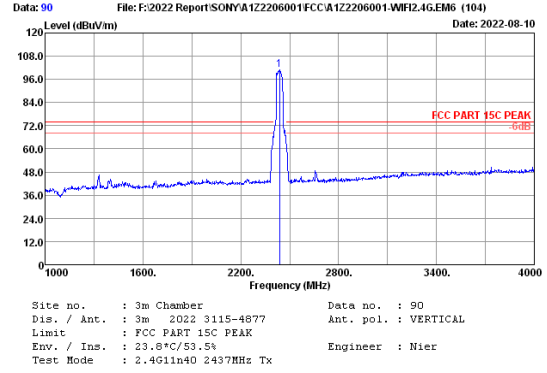
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4844.00	33.10	4.99	38.12	34.47	41.74	54.00	12.26	Average
2	4844.00	33.10	4.99	51.45	34.47	55.07	74.00	18.93	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



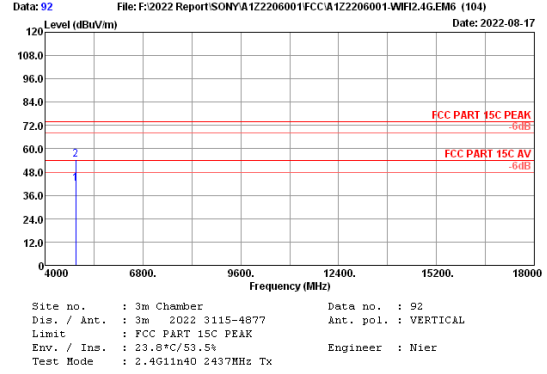
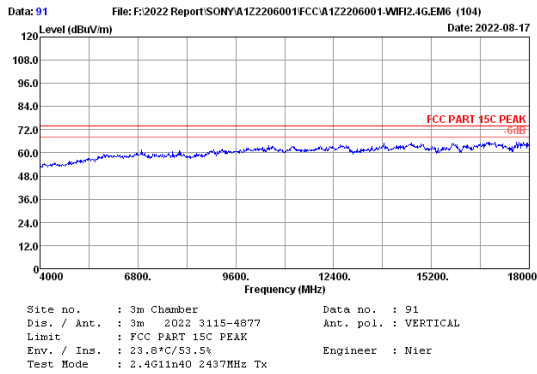
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.30	3.68	108.65	35.24	105.39	72.00	-----	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.30	3.68	104.40	35.24	101.14	72.00	-----	Peak

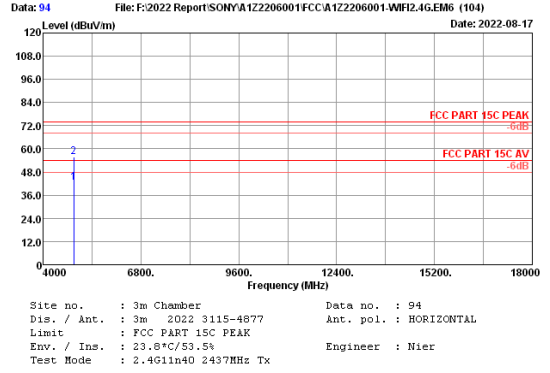
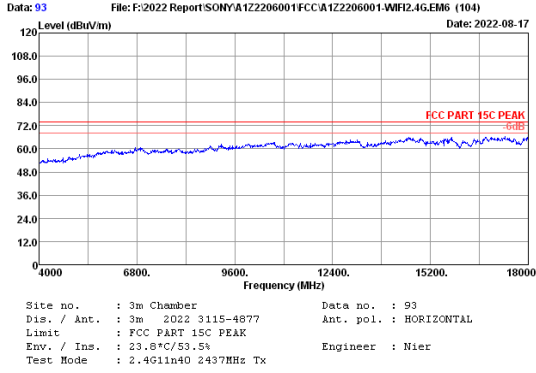
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	5.01	38.53	34.47	42.17	54.00	11.83	Average
2	4874.00	33.10	5.01	50.91	34.47	54.55	74.00	19.45	Peak

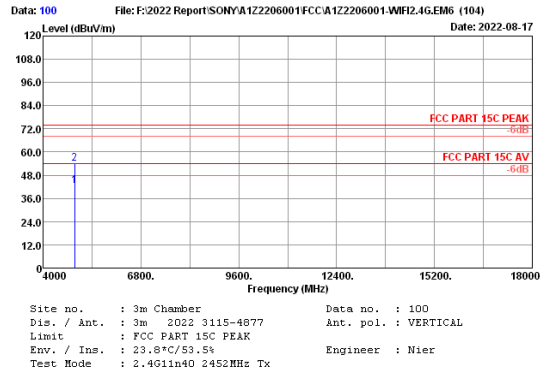
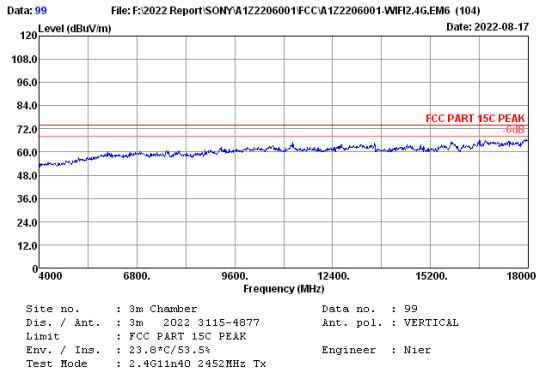
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.





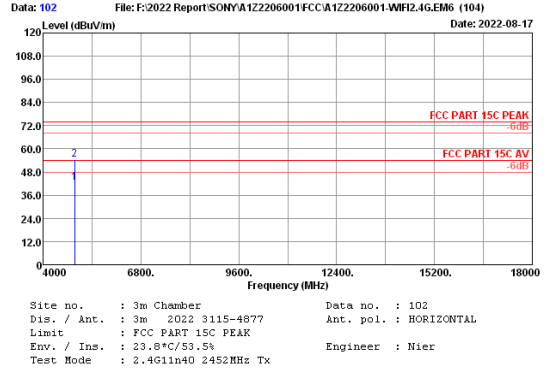
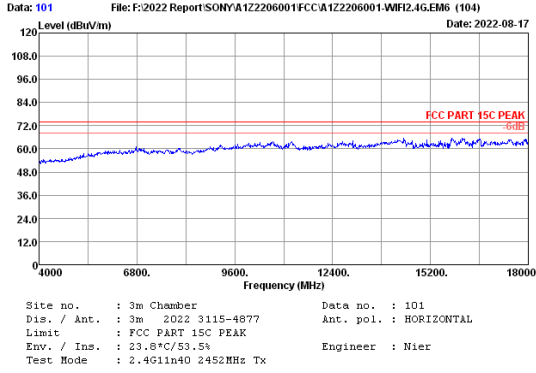
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	5.01	38.65	34.47	42.29	54.00	11.71	Average
2	4874.00	33.10	5.01	52.03	34.47	55.67	74.00	18.33	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



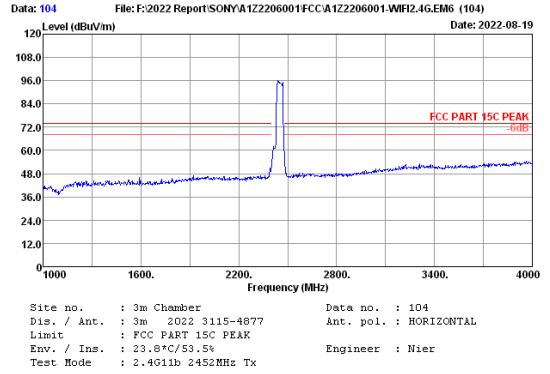
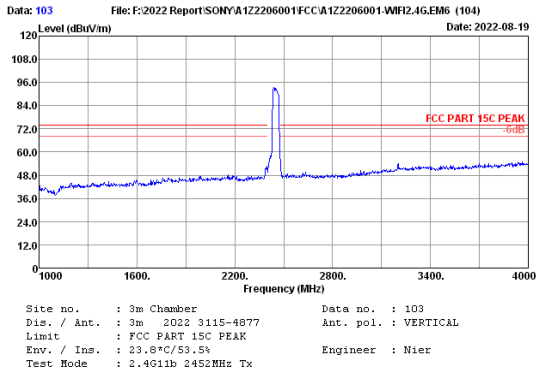
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4904.00	33.10	5.01	39.04	34.48	42.67	54.00	11.33	Average
2	4904.00	33.10	5.01	50.32	34.48	53.95	74.00	20.05	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4904.00	33.10	5.01	38.78	34.48	42.41	54.00	11.59	Average
2	4904.00	33.10	5.01	50.81	34.48	54.44	74.00	19.56	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



## 5. CONDUCTED SPURIOUS EMISSIONS

### 5.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,22	1 Year
2.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.06,22	1 Year

### 5.2. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30dB instead of 20dB.

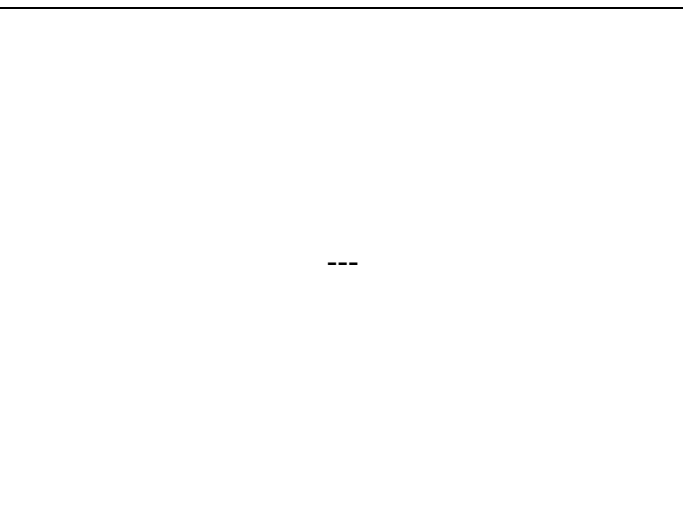
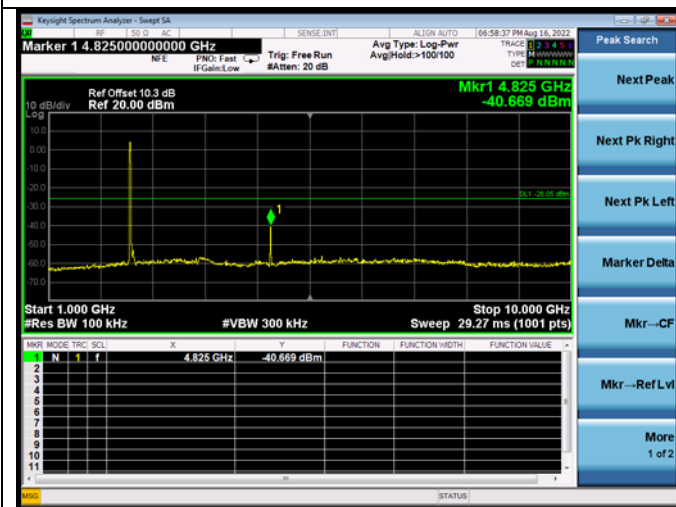
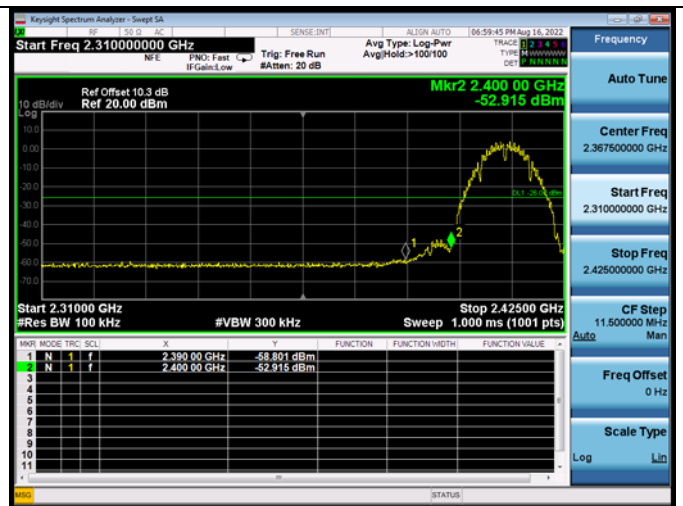
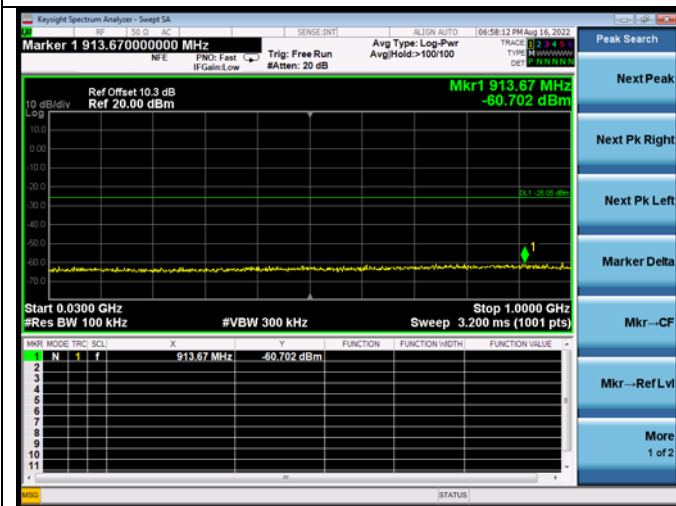
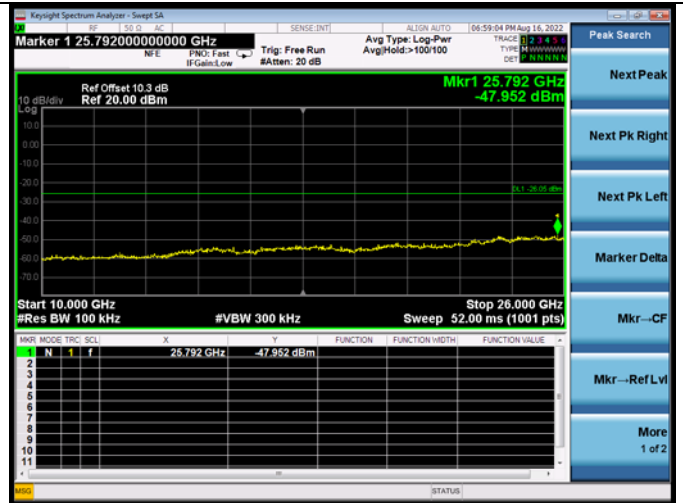
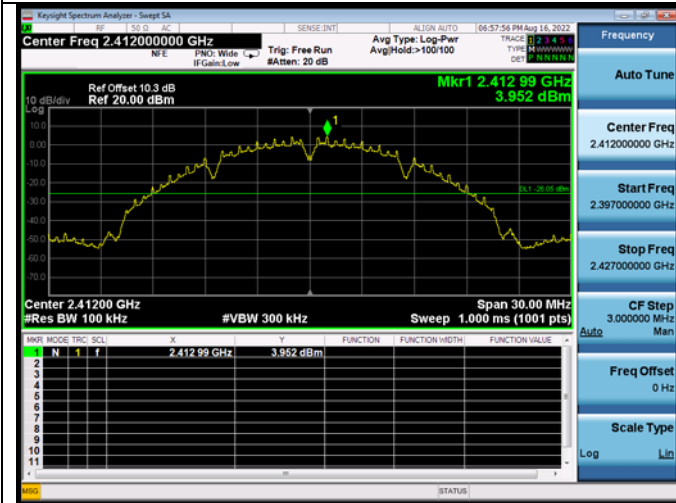
### 5.3. Test Procedure

The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions with peak detector.

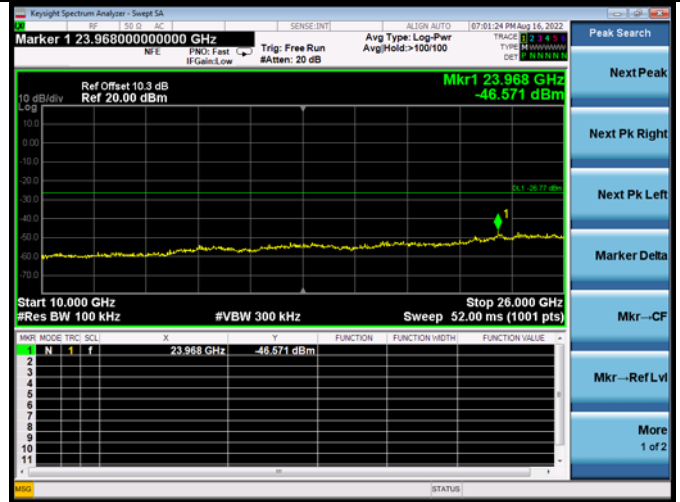
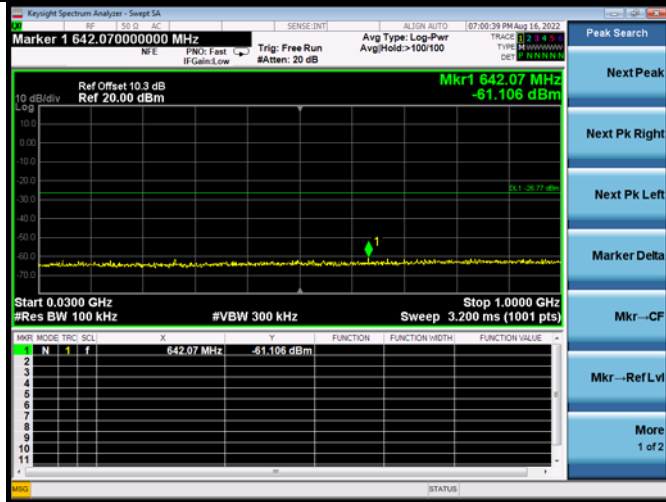
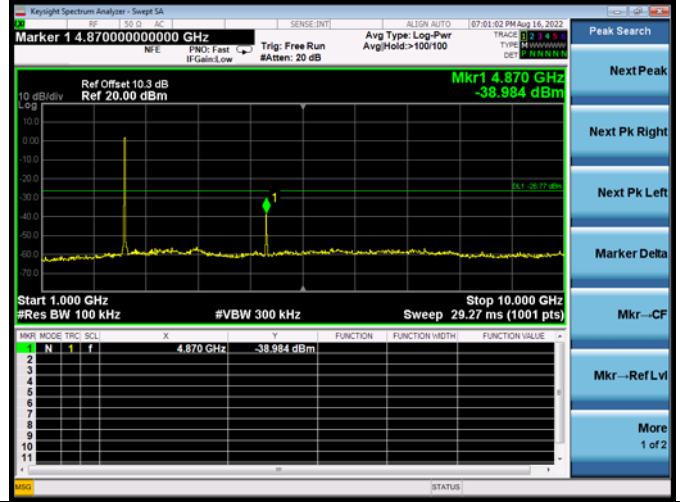
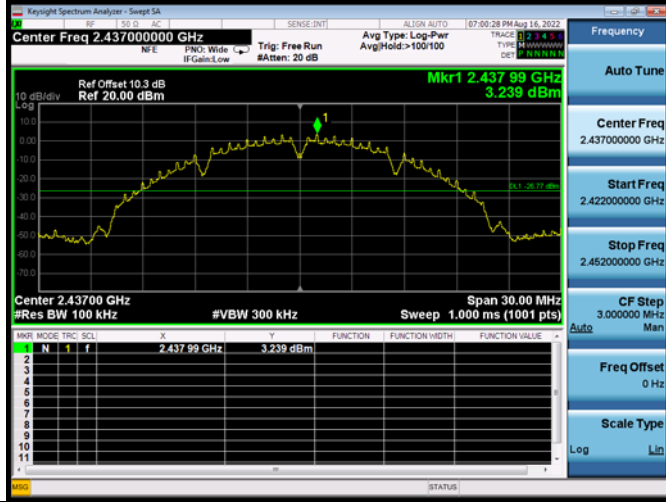
### 5.4. Test result

**PASS** (The testing data was attached in the next pages.)

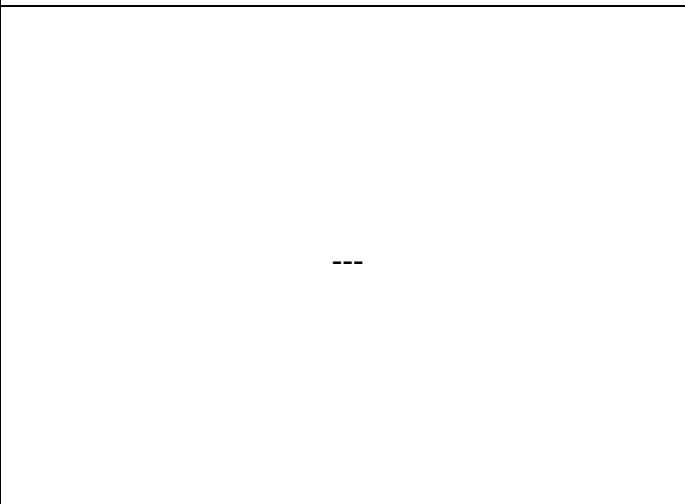
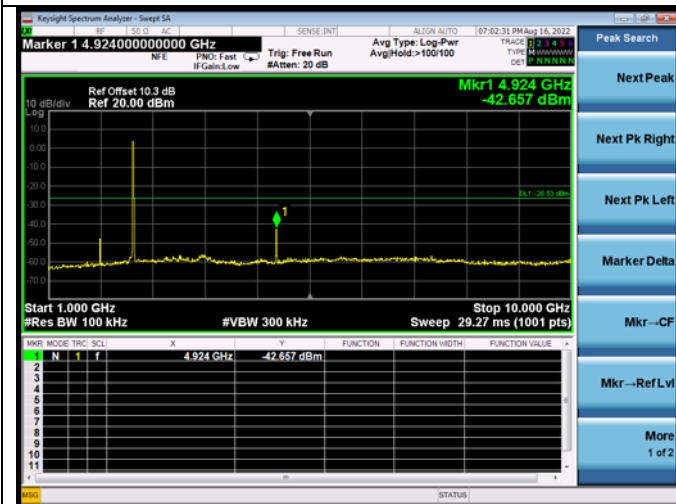
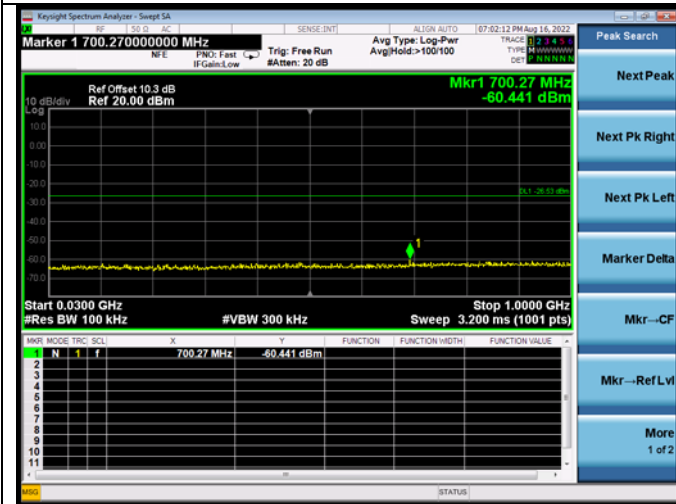
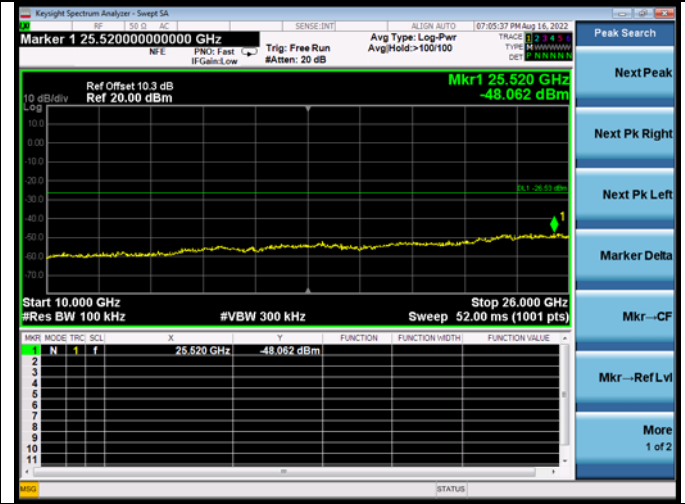
Test Mode: IEEE 802.11b  
 Test CH1: 2412MHz



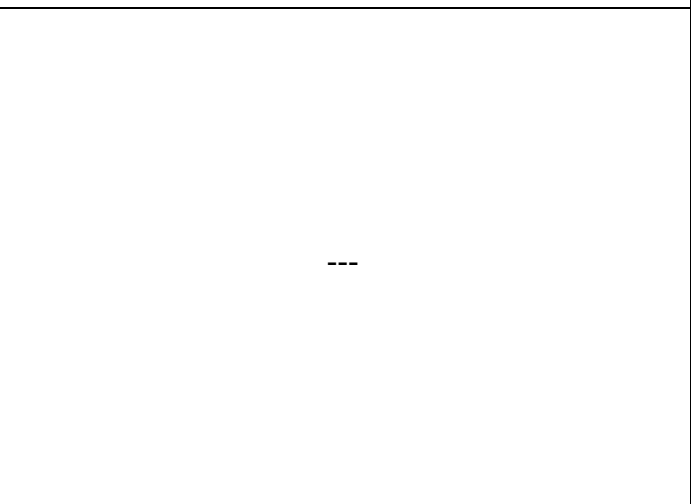
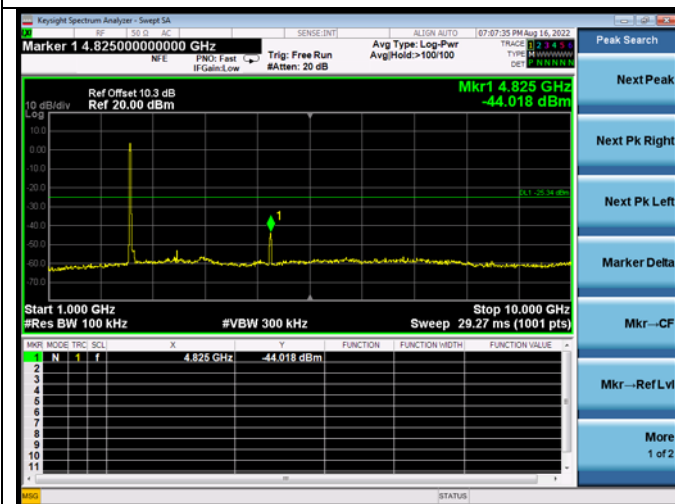
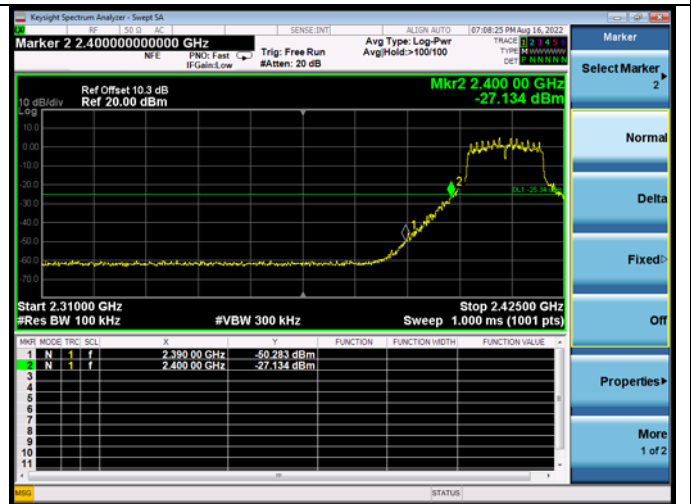
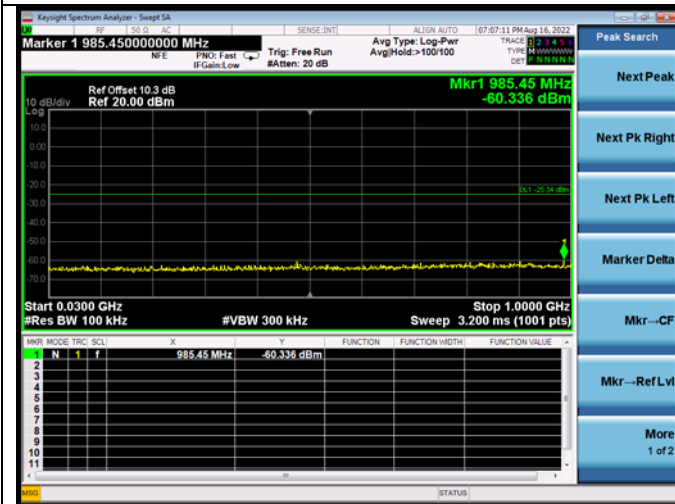
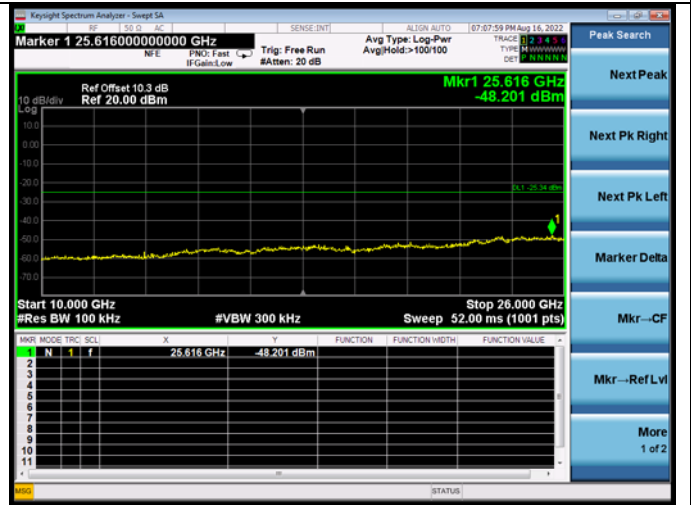
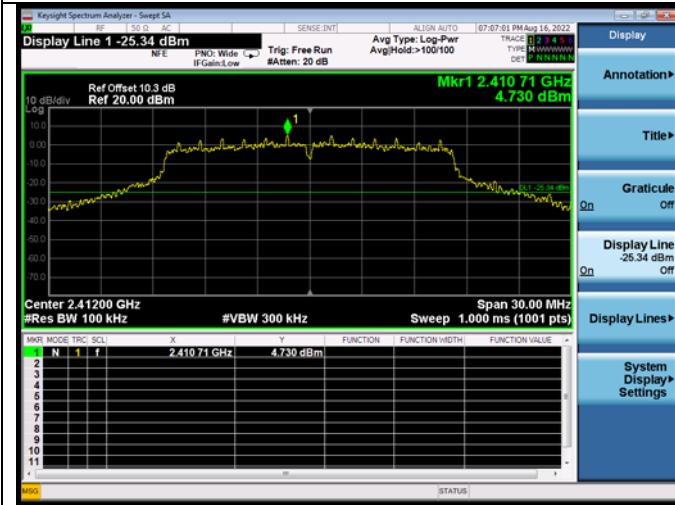
Test CH6: 2437MHz



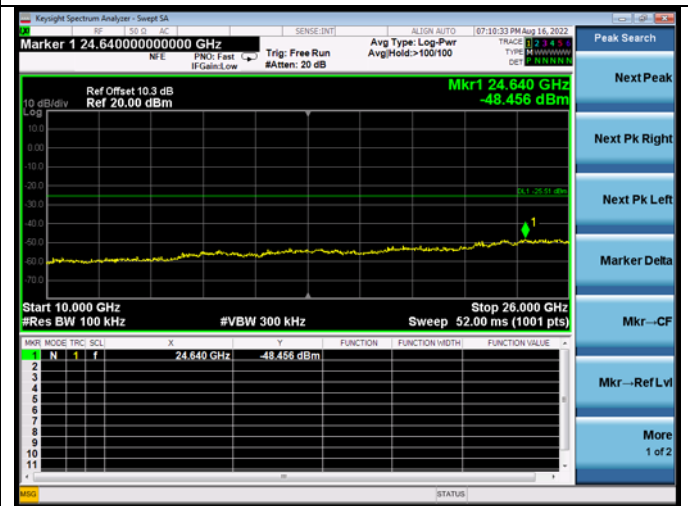
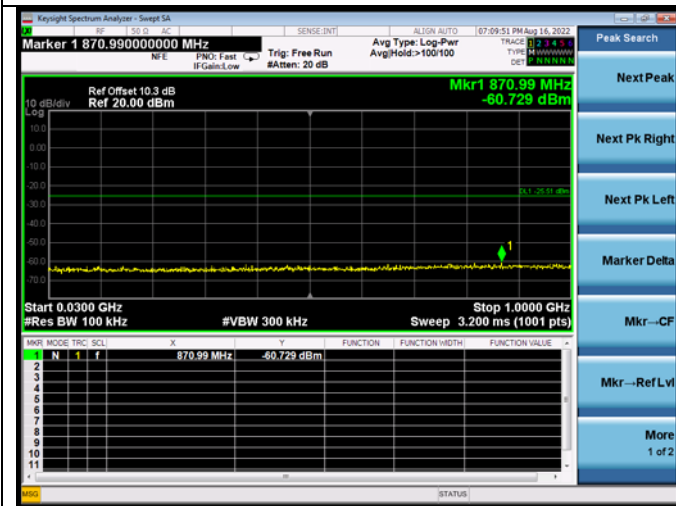
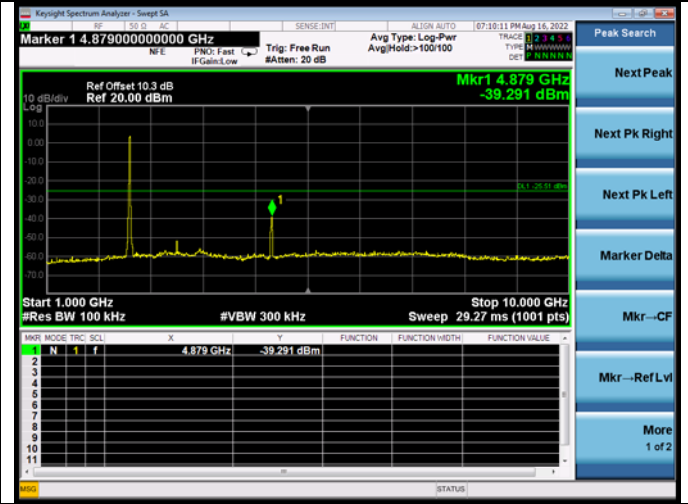
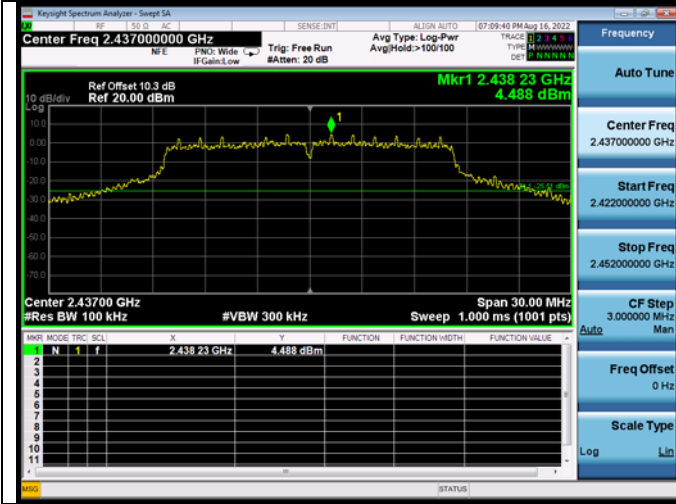
Test CH11: 2462MHz



Test Mode: IEEE 802.11g  
Test CH1: 2412MHz

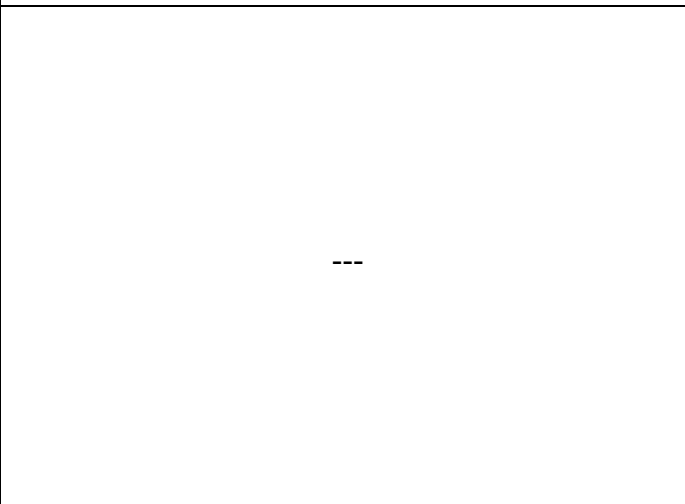
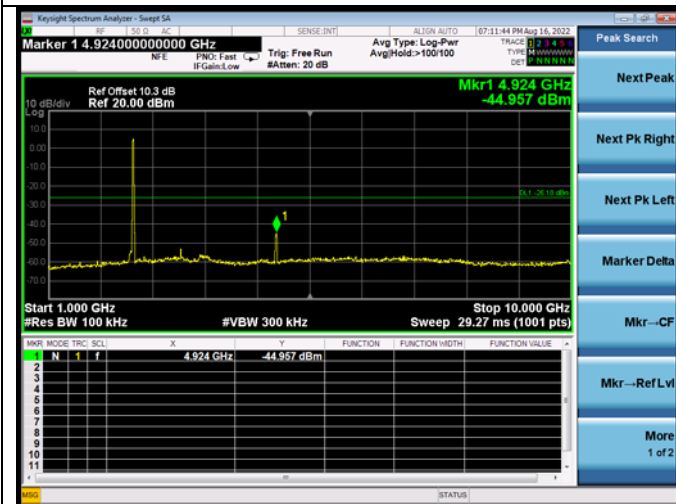
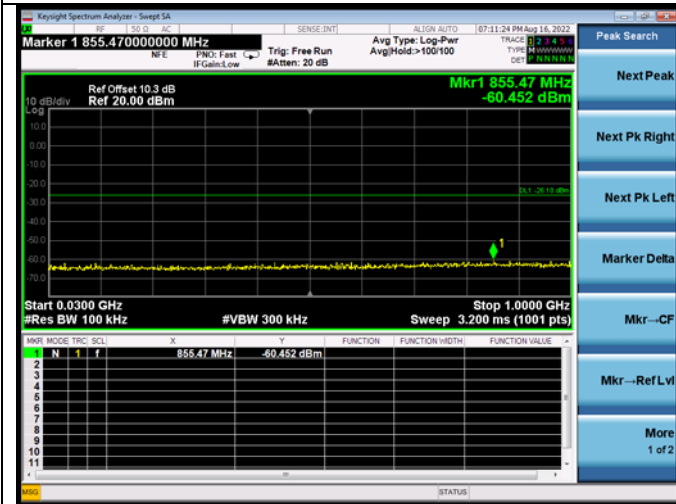
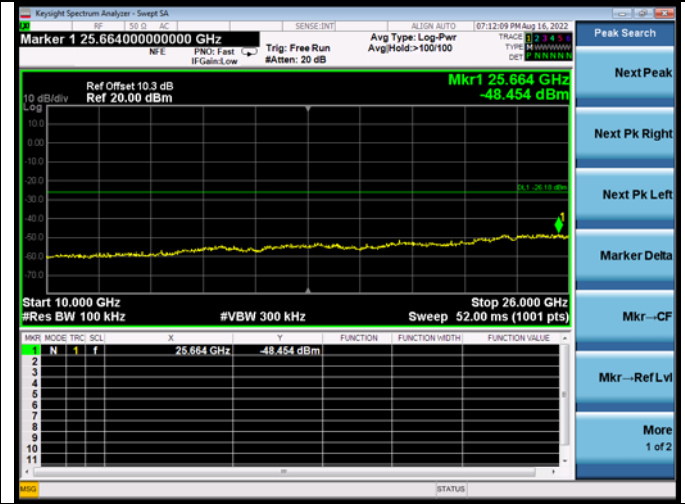


Test CH6: 2437MHz

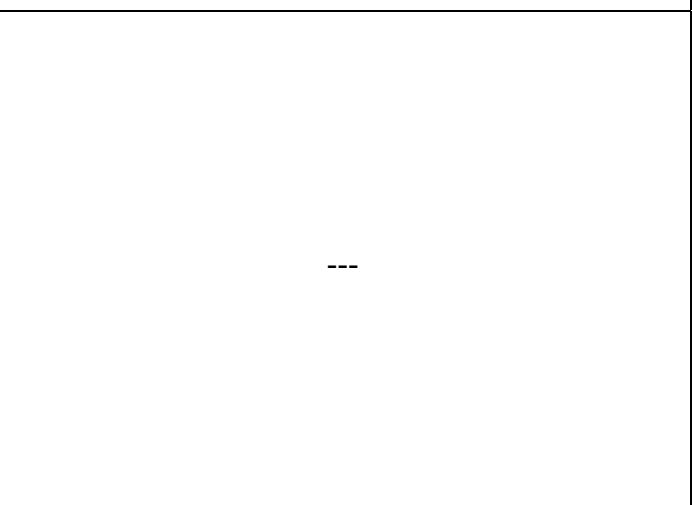
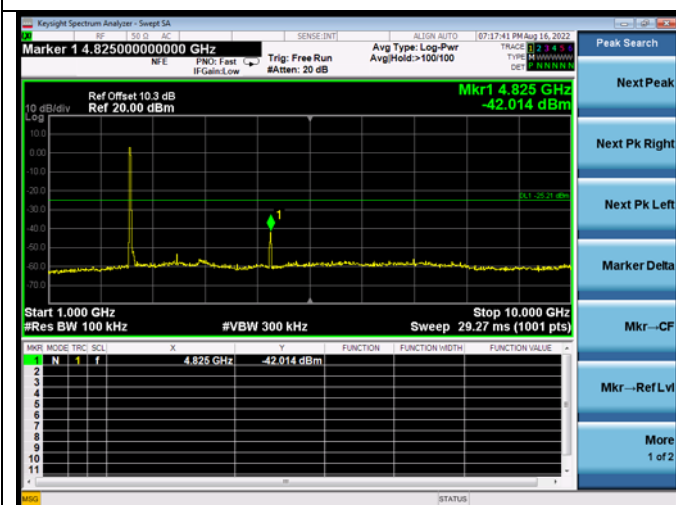
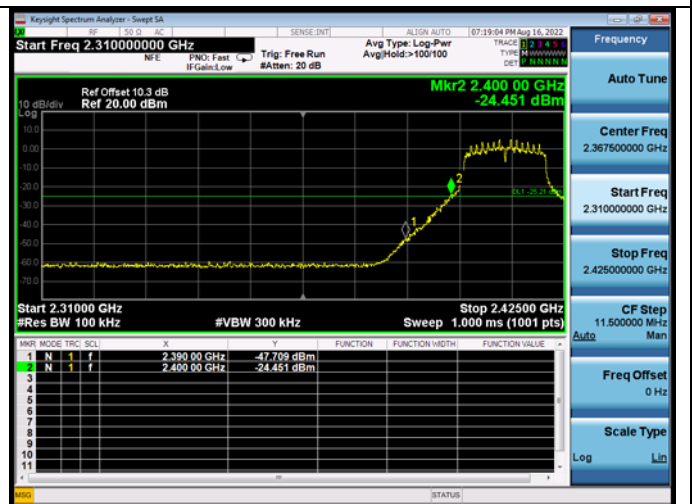
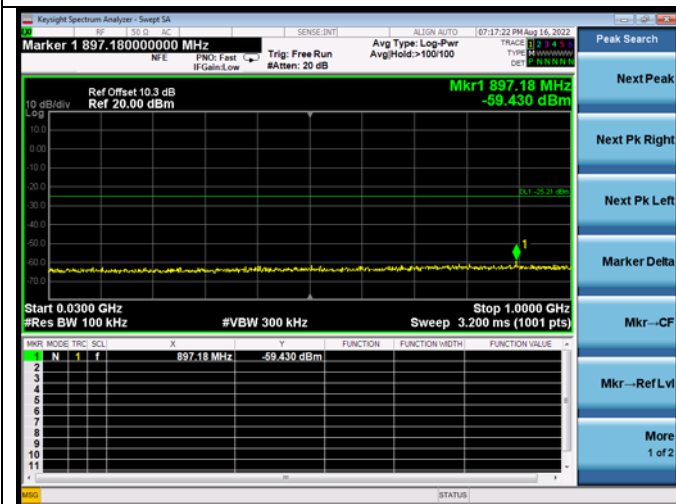
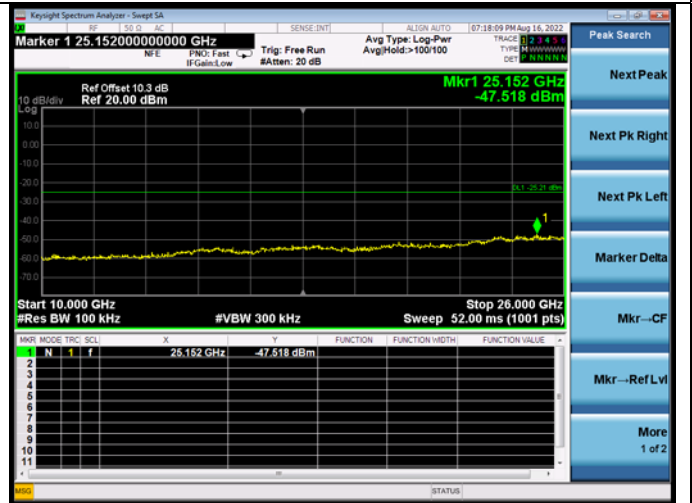
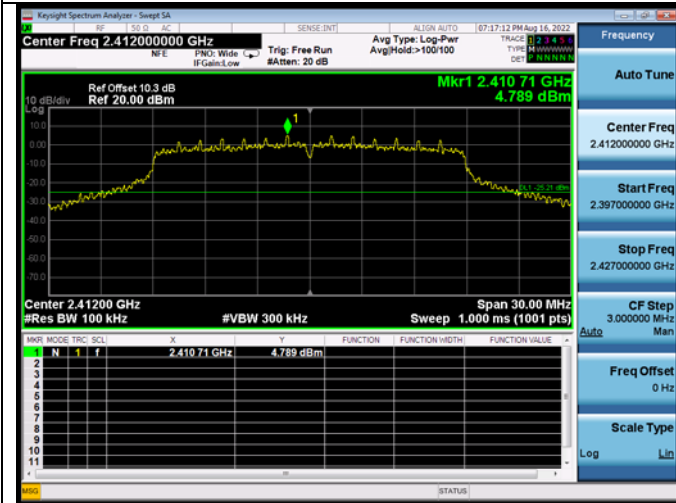




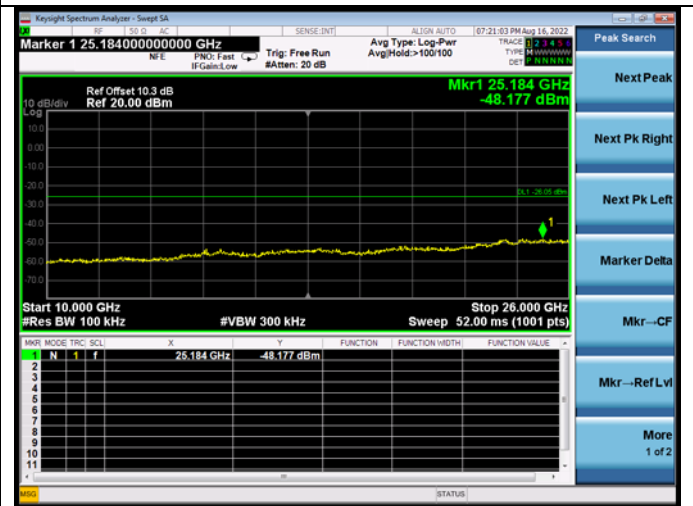
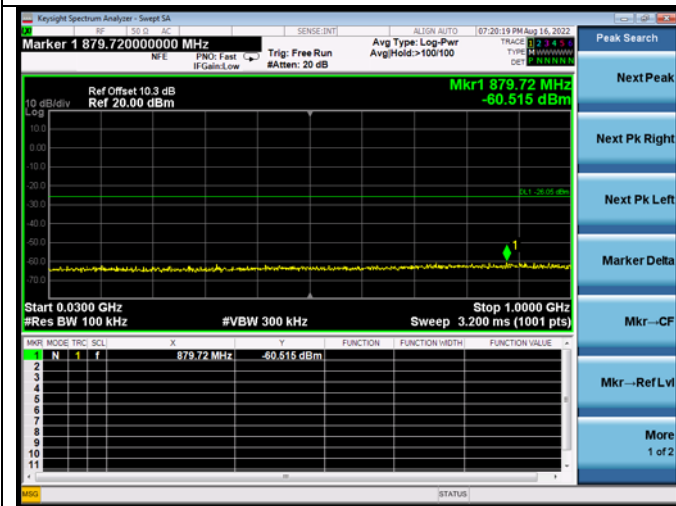
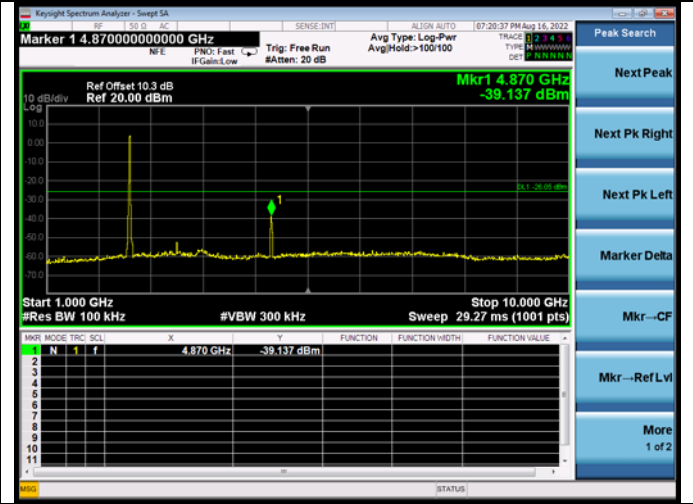
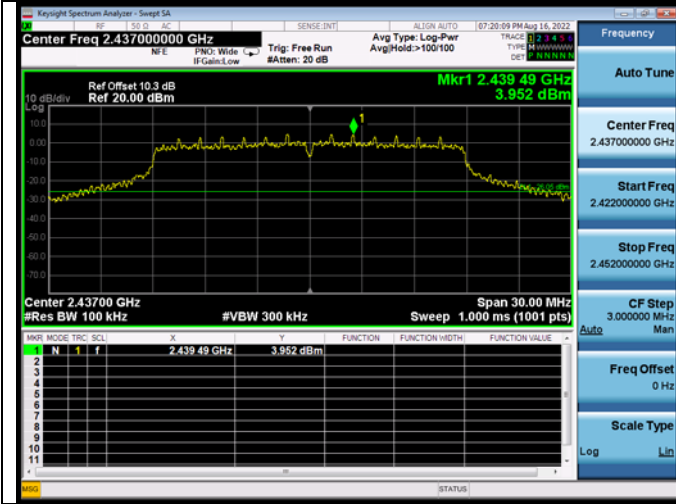
Test CH11: 2462MHz



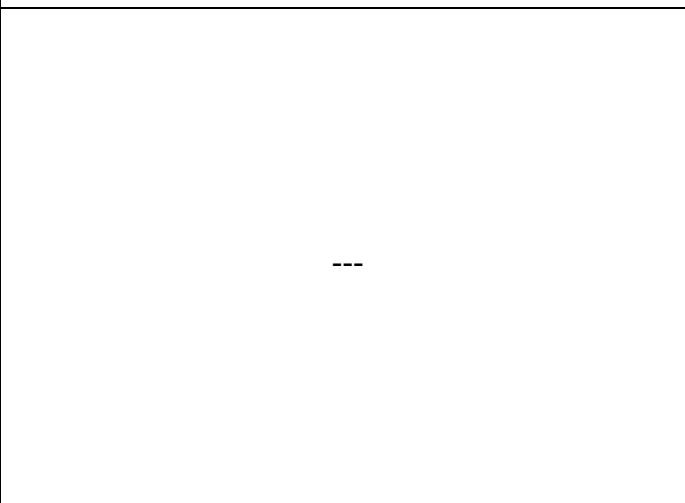
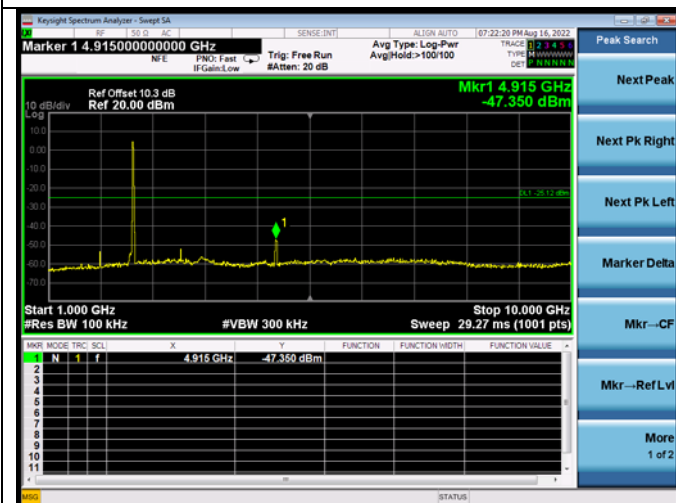
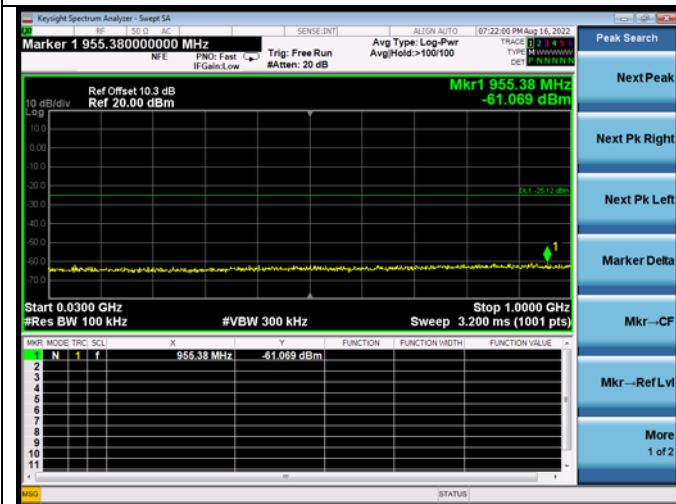
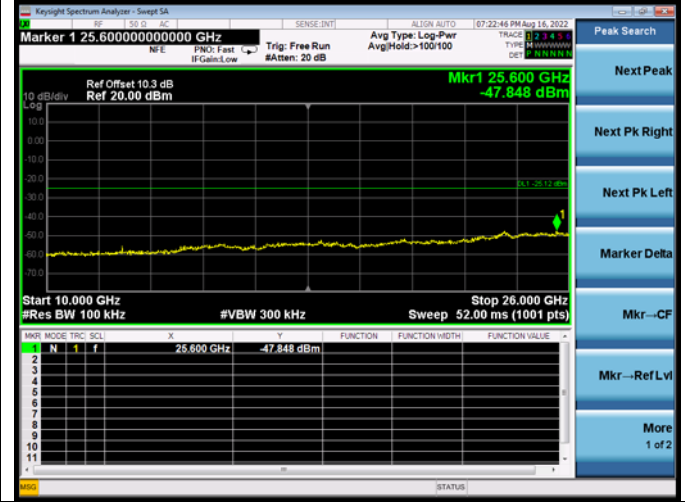
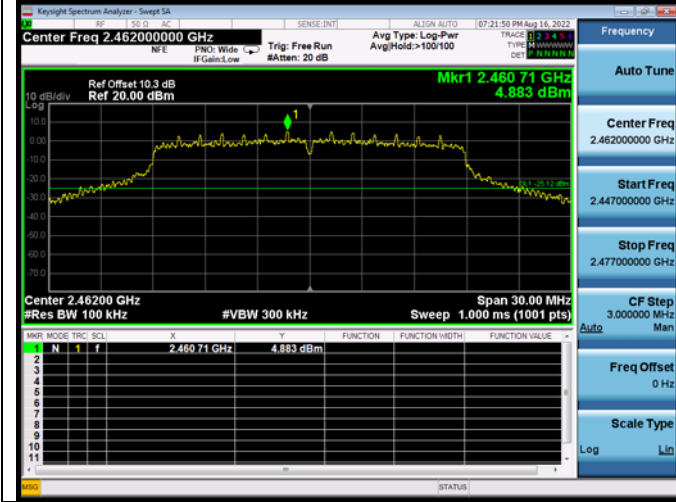
Test Mode: IEEE 802.11n HT20  
 Test CH1: 2412MHz



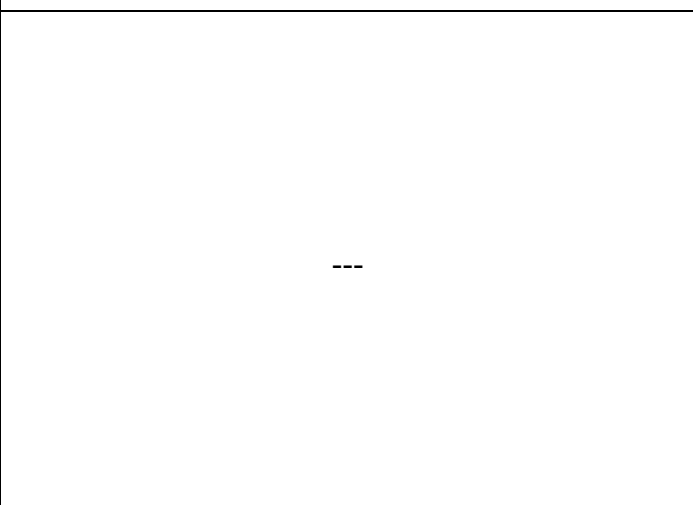
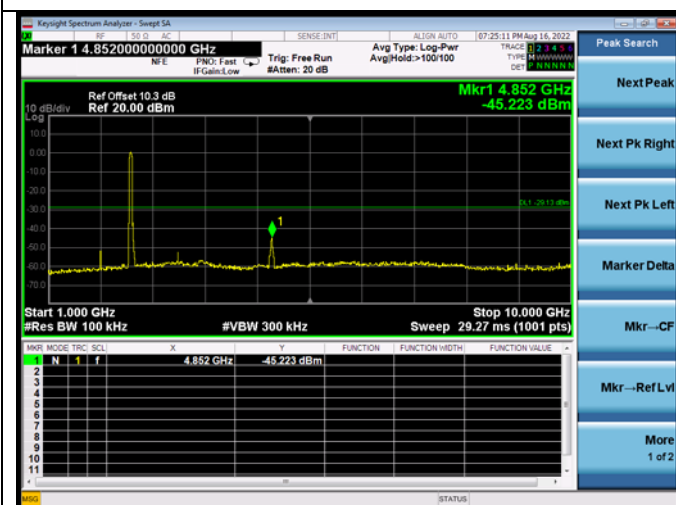
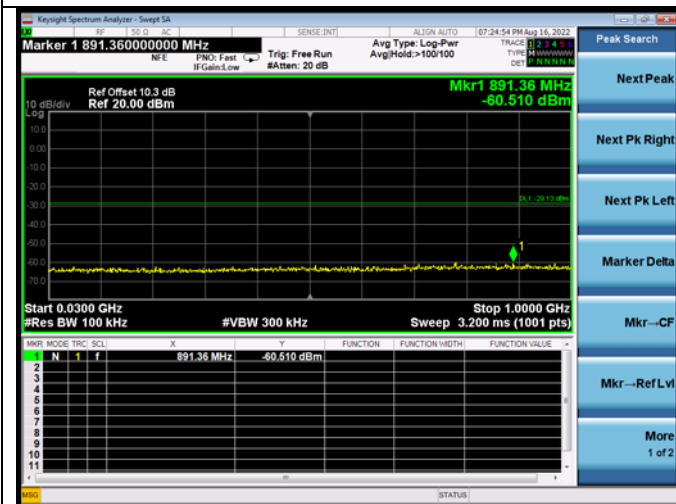
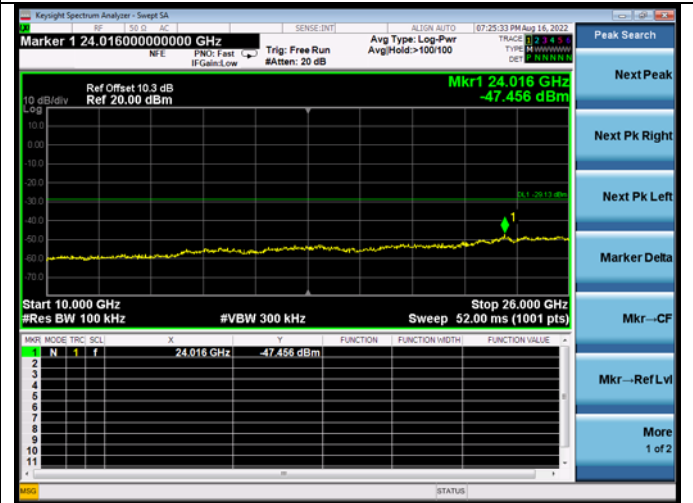
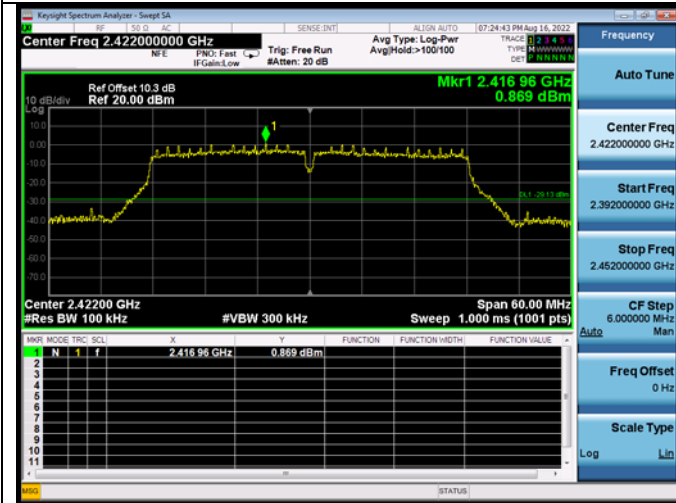
Test CH6: 2437MHz



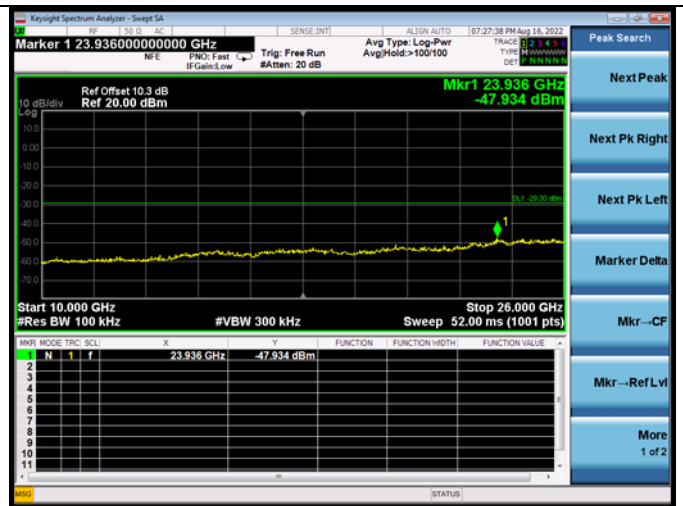
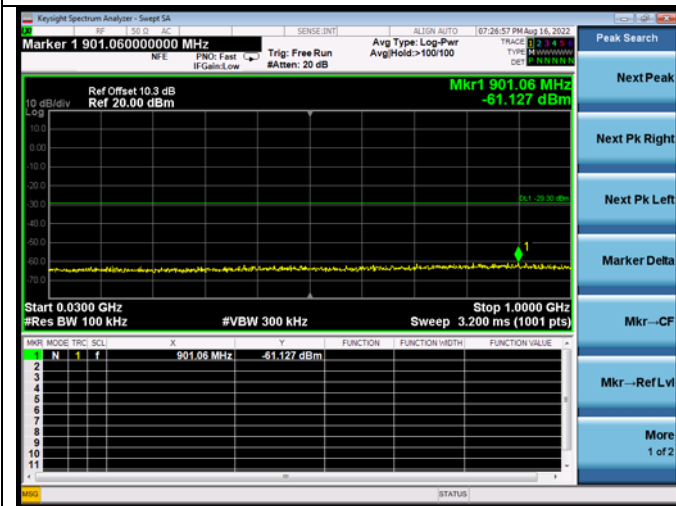
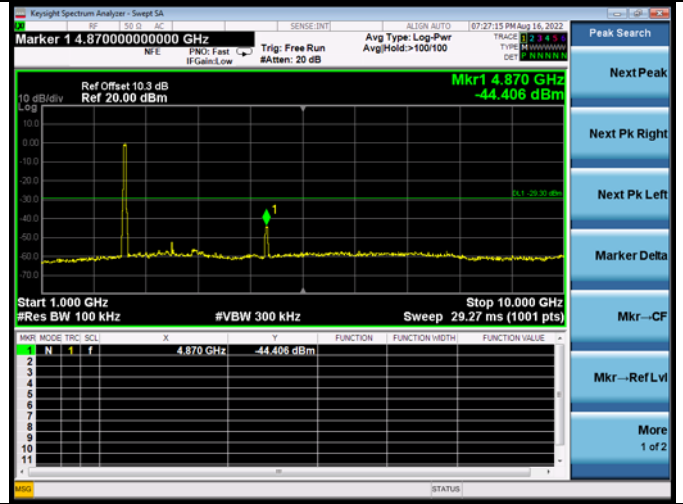
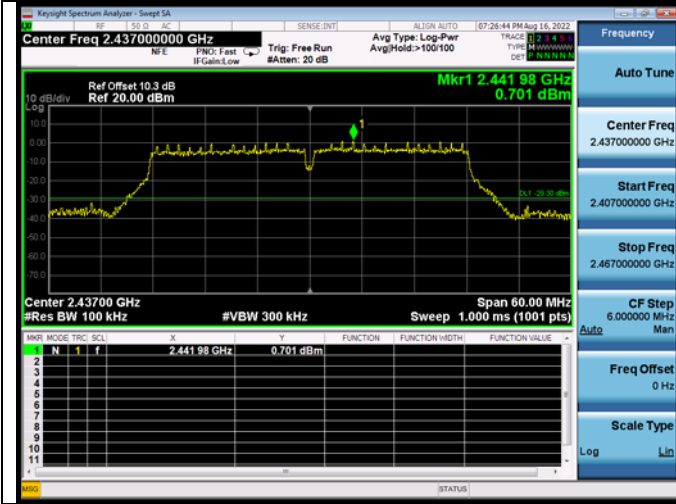
Test CH11: 2462MHz



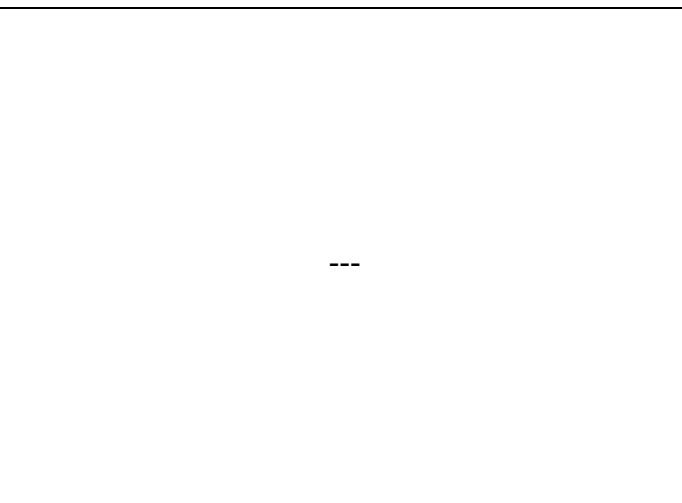
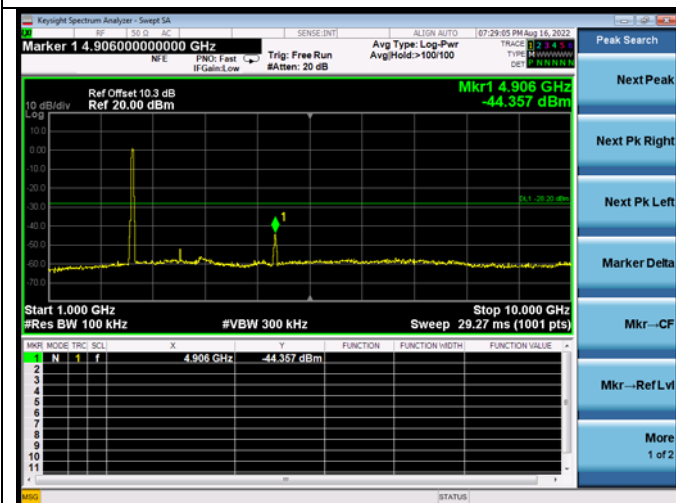
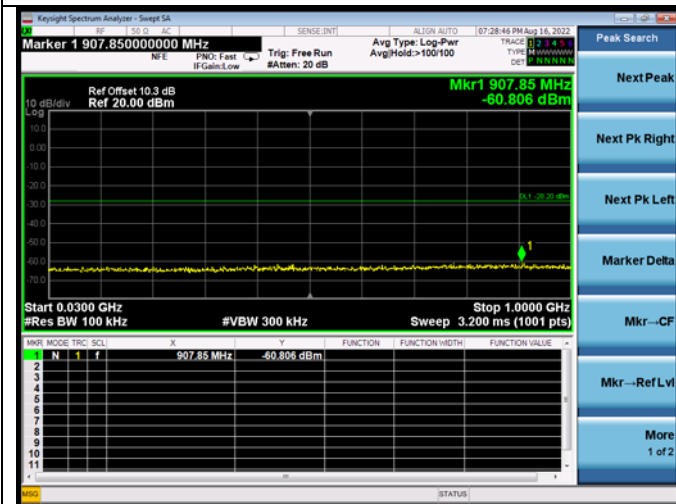
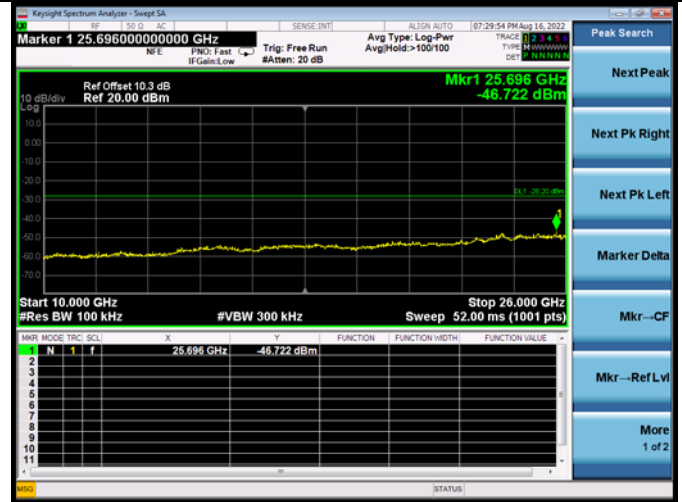
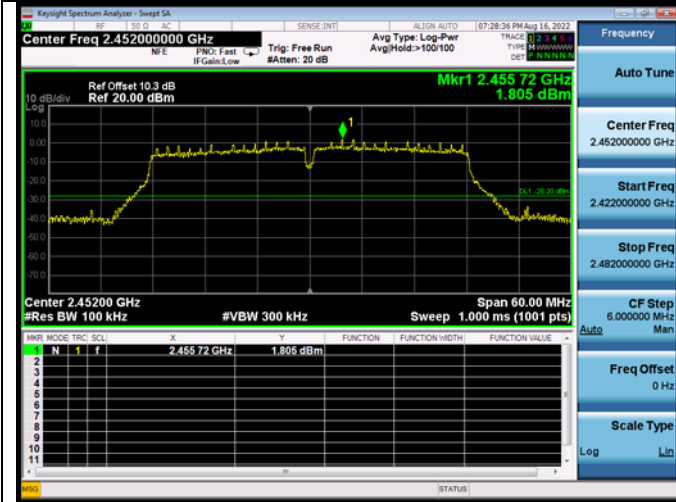
Test Mode: IEEE 802.11n HT40  
 Test CH3: 2422MHz



Test CH6: 2437MHz



Test CH9: 2452MHz





## 6. BAND EDGE COMPLIANCE TEST

### 6.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,22	1 Year
2.	Amplifier	Agilent	8449B	3008A00863	Apr.06,22	1 Year
3.	Horn Antenna	ETS	3115	9607-4877	Jan.08,22	3 Year
4.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.06,22	1 Year

### 6.2. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

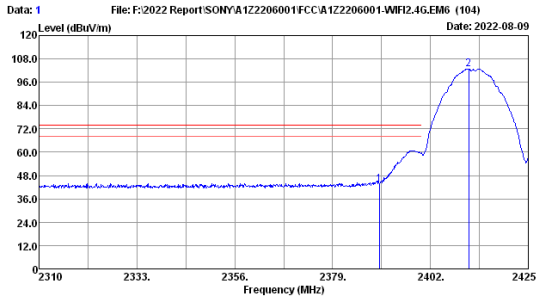
### 6.3. Test Procedure

1. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
  - (a) PEAK: RBW=1MHz; VBW=3MHz; Sweep=AUTO
  - (b) AVERAGE: RBW=1MHz; VBW=10Hz; Sweep=AUTO

### 6.4. Test Results

Pass (The testing data was attached in the next pages.)

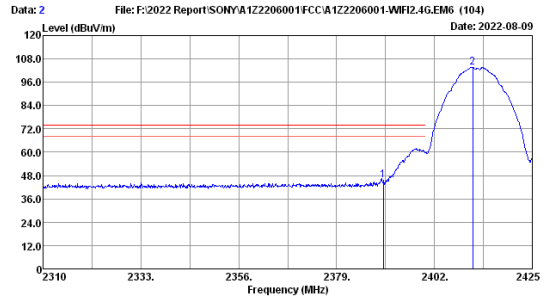




Site no. : 3m Chamber Data no. : 1  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2412MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.30	3.65	46.86	35.24	43.57	74.00	30.43	Peak
2	2410.97	28.30	3.66	106.18	35.24	102.90	-----	-----	Peak

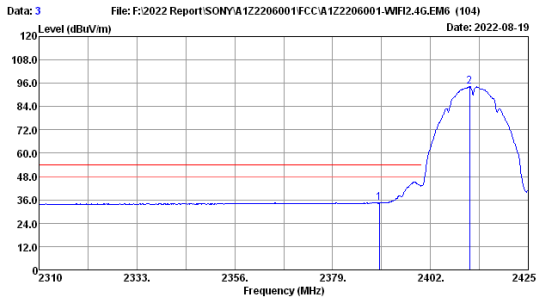
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 2  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2412MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.30	3.65	48.70	35.24	45.41	74.00	28.59	Peak
2	2410.97	28.30	3.66	106.97	35.24	103.69	-----	-----	Peak

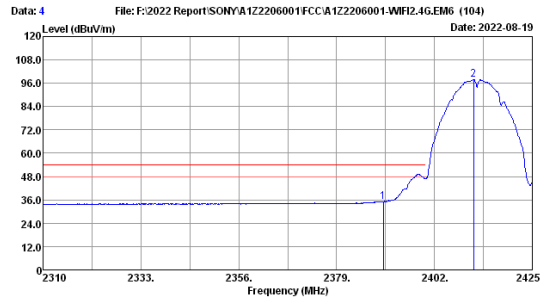
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 3  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2412MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.30	3.65	37.62	35.24	34.33	54.00	19.67	Average
2	2411.20	28.30	3.66	97.63	35.24	94.35	-----	-----	Average

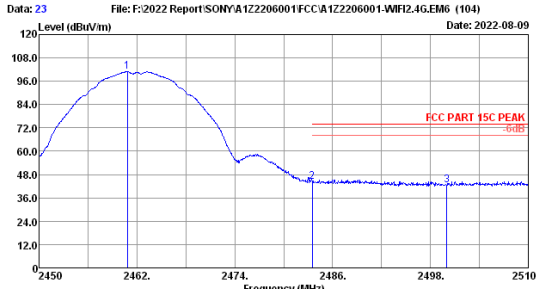
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 4  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2412MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.30	3.65	38.32	35.24	35.03	54.00	18.97	Average
2	2411.20	28.30	3.66	101.31	35.24	98.03	-----	-----	Average

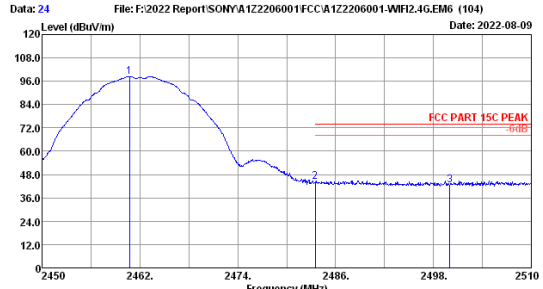
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 23  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2462MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.86	28.30	3.70	104.07	35.25	100.82	74.00	26.82	Peak
2	2483.50	28.30	3.71	47.32	35.25	44.08	74.00	29.92	Peak
3	2500.00	28.30	3.72	45.75	35.25	42.52	74.00	31.48	Peak

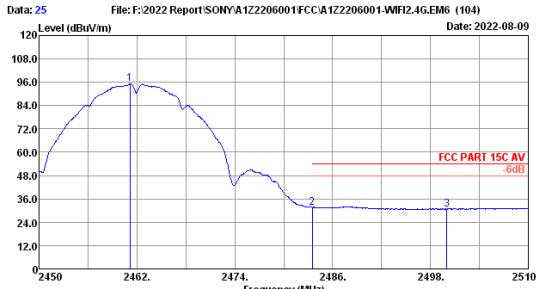
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 24  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2462MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.74	28.30	3.70	101.60	35.25	98.35	74.00	24.35	Peak
2	2483.50	28.30	3.71	47.47	35.25	44.23	74.00	29.77	Peak
3	2500.00	28.30	3.72	45.76	35.25	42.53	74.00	31.47	Peak

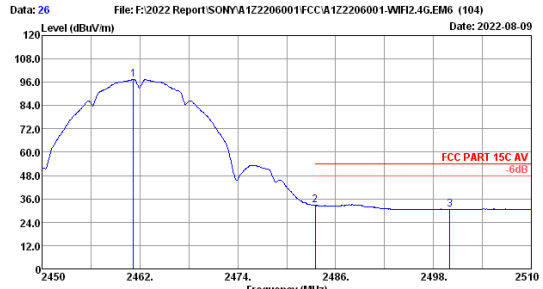
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 25  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2462MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.16	28.30	3.70	98.31	35.25	95.06	54.00	41.06	Peak
2	2483.50	28.30	3.71	34.89	35.25	31.65	54.00	22.35	Average
3	2500.00	28.30	3.72	33.88	35.25	30.65	54.00	23.35	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 26  
 Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23.8°C/53.5% Engineer : Nier  
 Test Mode : 2.4G11b 2462MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.22	28.30	3.70	100.74	35.25	97.49	54.00	43.49	Average
2	2483.50	28.30	3.71	35.82	35.25	32.58	54.00	21.42	Average
3	2500.00	28.30	3.72	33.82	35.25	30.59	54.00	23.41	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.